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Homebuilding & Renovating

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Magazine*

Building a 21st Century Home

- Self-builds, Extensions and Remodels
- Contemporary Design Masterclass
- Common Mistakes to Avoid

ARCHITECTS' SECRET TIPS REVEALED

Top Words of Wisdom
for Project Success

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to Choosing the Best

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A man in a light blue shirt and tan trousers stands near a large bi-fold door, looking towards a woman in a red dress who is standing behind a dining table. The table is set with a white tablecloth, a striped runner, plates, glasses, and a vase of flowers. The room features large windows and a wooden cabinet in the background. The scene is bright and airy, suggesting a high-quality interior design.

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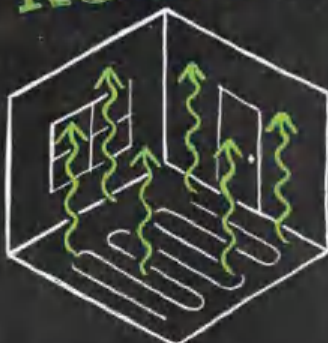
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WELCOME OCTOBER 2015

The Modern Home Gets Cosy

**Jason Orme is the Editor of
*Homebuilding & Renovating***

I hear it time and time again as the main reaction from 'normal' people (as in, people who are not architects) to contemporary homes. "Too clinical. Not cosy enough. Cold. Harsh. Terrible for kids." That is all true to an extent — and our Modern Home Design issue heralds the fact that the 2015 home has taken a major leap forward in addressing these concerns. Architects at the cutting edge are now using natural, organic and local materials to create a softer feel to the modern lines, and the rise of 'contextualism' means that the one-size-fits-all modern white box is being usurped by individual, reactive homes, designed to reflect and live in their unique settings.

What all this means for those of us who are building or renovating homes in a modern style is that they will be easier to live with, require less maintenance and likely to be more acceptable to planners.



This issue shows you how to create this 2015 look in your new home with plenty of expert guides, including Charlie Luxton's modern home masterclass (p.34), and dozens of great design ideas. Elsewhere, we asked some of the UK's leading architects to come up with the things they wished their clients had known before they started (p.150); a comprehensive guide to choosing a package supplier (p.128); and a smart guide to repointing your old brickwork (p.147).

I hope you enjoy the issue. **H**

@JasonPOrme
homebuilding@centaur.co.uk

Jason Orme is currently rebuilding a 1960s house (described as 'Frank Lloyd Wright' by HB&R's Contributing Editor Mark Brinkley) and is an experienced self-builder and renovator



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Martyn Bridges is director of technical support at leading heating and hot water manufacturer, Worcester, Bosch Group



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DESIGN DIGEST

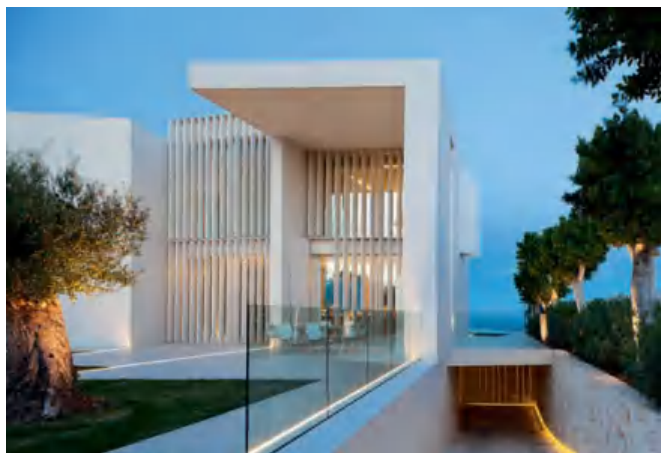
The latest house design ideas and news from around the world



Mediterranean Masterpiece

Sitting high above the Mediterranean sea, this striking home from architect Ramón Esteve is the ultimate in contemporary European architecture. The entrance façade is protected by an automated system of adjustable shutters made of whitened Accoya wood; the shutters protect this elevation from the sun and, at the same time, limit views from the street. In contrast, the east façade to the rear is much more permeable and transparent, with the concrete vertical surfaces sealed with large glass panes. The glazing is protected by cantilevers, which in turn create verandas enclosing the outdoor terrace below. Inside, twisting internal curtains add an ethereal atmosphere.

On the upper level, glazed corners offer interesting panoramic views and each room has a small glass balcony. The outdoor space has been designed as an extension of the interiors with the use of local stone and white concrete, with all views directing out towards the infinity pool which appears to merge into the sea beyond.



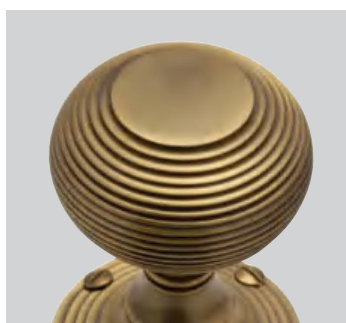
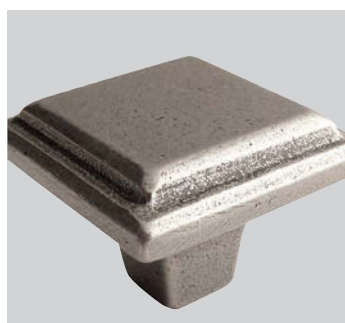
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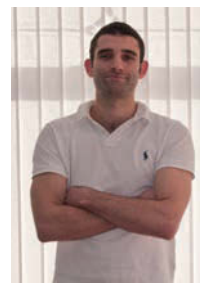
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“Calais Strikes Have Impacted on my Self-build”

We catch up with self-builder Joe Shimbart, who's building an energy-efficient oak frame house in Hampshire using natural materials



Following the erection of the oak frame on site, the race was on to get the frame ready for the hempcrete so that it could be cast and dry out over the remainder of the summer. Everything was falling into place — even the weather had been kind.

I had planned for a small team from Hemp-LimeConstruct to work with my team and I to hempcrete the house, and I had decided to source my lime binder and hemp direct from France. There were several reasons for this, but it made most sense for my project. Everything was set up to go and my supplier in France had all the materials ready to dispatch. But this is, after all, a self-build — it shouldn't be this easy, should it?

The next day the news announced a strike at Calais with massive congestion at all ports. My supplier couldn't get a transporter to collect the materials, and when the situation would change was unclear. Time's now running out. Will my lime and hemp arrive? Or will I be paying a hempcrete team to drink tea? **For more updates on Joe's self-build project, visit homebuilding.co.uk/blogs**

Facebook Fandom

Q. How much will your foundations cost and what should you watch out for?

A.1. “Get several estimates and double the most expensive one! Contingency is key!” **Louise McKay**

A.2. “Far too much in our case; a seam of clay resulted in the building inspectors telling us to keep digging until the excavator bucket couldn't reach any deeper — about 12-14ft in some places for a single storey extension, ridiculous!” **Jonathan Bowman**

A.3. “Setting a realistic budget and sticking to it is the key to a stressless build.” **Nick Lane Building Consultant**

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“Low energy bills, thermal comfort, natural light, endless storage, private outdoor space! #GoodDesignWeek” **@Carrie_Behar**

“Space and light” **@beaton_bruce**



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Once I know where the morning sunrise will hit the proposed building, I can begin by typically placing the breakfast room here and, depending on your sleeping habits, perhaps the master bedroom.



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UPFRONT

MATERIALS

Latest looks for finishes and fittings



The Mini-Pantry from Humphrey Munson

The bespoke, handmade mini-pantry by Humphrey Munson is designed for compact kitchens — helping homeowners store goods and keep worktops tidy. It features pantry shelving with spice and condiment racks in the doors, and costs £1,695.



Clement Browne Shutters

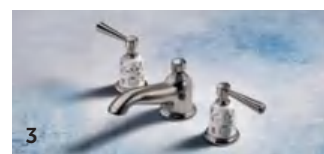
Adding a boutique style to your bedroom, these bespoke full-height shutters from Clement Browne's Westcliff Collection can be specified in a range of colours and materials, and offer privacy while letting light flow through. Prices start at £250/m².



Scona Shower Surface from Kaldewei

Resembling a large, flat tile, the Scona shower surface is made from 3.5mm steel enamel and offers a contemporary design with 44 sizes to choose from. The easy-to-install surface features a central circular waste and can be placed on or flush with the floor for a wetroom finish. The Scona also comes with a 30-year guarantee and a choice of anti-slip finishes. Prices start from £451 for the 75x80cm option.

The Latest Taps



1. Perrin & Rowe's traditional-style Country Aquitaine Instant Hot Water Tap costs £874

2. The Talis Select mixer from Hansgrohe has a pull-out spray head and swivel spout. From £352

3. Samuel Heath's three-hole basin mixer with low spout in polished nickel, crafted in collaboration with Royal Crown Derby, launches on 21 September. POA

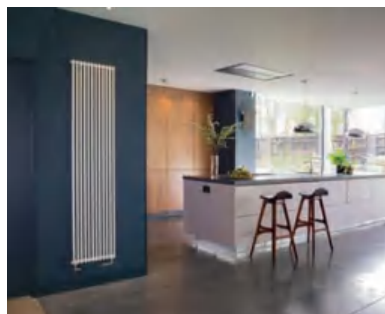


The Shanghai Fireplace from J. Rotherham

Part of The Essential Collection from J. Rotherham, the Shanghai fireplace combines natural Minoan limestone with exquisite dark Emperador marble for a sophisticated, bold design with rich tones. There are 15 new designs within the collection with the option to select from a range of materials. POA.

Trubi Radiator from Bisque

With a modern, minimalist design, the Trubi radiator from Bisque offers a heating solution suitable for contemporary kitchens and bathrooms. Available in 12 different sizes — six vertical, six horizontal — the Trubi has an excellent heat output and can also be ordered in Bisque's wide range of colour options, from bold, bright primary hues to soft pastel shades and classic white, titane and volcanic finishes. Prices start from £265 (excluding VAT).



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THE LATEST

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High Court Judgement Rules Section 106 Exemption for Self-builders as Unlawful

The exemption for self-builders from Section 106 payments has been thrown into doubt by a recent High Court judgement. West Berkshire and Reading borough councils won their battle in early August against implementing the Section 106 exemption for small sites — with the High Court ruling the Government's policy 'unlawful'.

In November 2014, the Government issued amendments to National Planning Policy Guidance (NPPG), stipulating that any developments with less than 10 properties in urban areas and five in rural areas would be exempt from Section 106 payments. This has been challenged by several councils unsuccessfully — until now.

The West Berkshire and Reading case was heard by Justice David Holgate, who ruled against the DCLG's (Department for Communities and Local Government) policy, saying it was "incompatible" with the Town and Country Planning Act 1990 and the Planning and Compulsory

Purchase Act 2004. The judge said the policy change was not only "unlawful" but he also ruled the consultation on changes to planning policy as "unfair", as not all of the information relating to the changes was made available to councils. Justice Holgate deemed that the policy could lead to a reduction in land available for affordable housing, was an "unacceptable risk of unlawful decision-making", and that councils might have to submit revised local plans to the Planning Inspectorate to factor in affordable housing shortfalls. What this now means, however, is that self-builders may be expected to pay, in some cases, £1,000s for the right to build their own home.

The DCLG have made their disappointment clear, and plan to appeal the decision which could see potential self-builders struggle to finance their project, as well as undermine the Conservative's manifesto pledge to build 200,000 starter homes by 2020.

Plug Pulled on Green Deal

Following a low take-up, Energy and Climate Change Secretary Amber Rudd has announced that there will be no further funding to the Green Deal Finance Company, and the Government will also be ceasing any future funding releases of the Green Deal Home Improvement Fund.

Originally conceived as the flagship 'green' household scheme, offering homeowners cash back on items such as double glazing, boilers, solar panels and insulation, the decision comes as a blow to those seeking to take out the loans to improve the energy efficiency of their home. The decision will have no impact on existing Green Deal Finance Plans or existing Green Deal Home Improvement Fund applications and vouchers however, and the Government will work with the building industry and consumer groups on a new value-for-money approach.

Of the decision, Neil Schofield, Head of Governmental and External Affairs at Worcester, Bosch Group, comments: "While the intention behind the Green Deal may have been positive, the complexity it added to the supply chain and its unappealing interest rate made success very unlikely. The question now is which scheme will be next to follow — the RHI (Renewable Heat Incentive) or ECO (Energy Company Obligation)? Moving forward, we need a Government that is willing to build on previous successes by talking to the industry and being flexible with its drip-feeding of regulation."


VAT Increases for Energy-Saving Materials

Following the recent European Court of Justice's (ECJ) ruling, the UK can no longer apply a reduced rate of VAT to the supply and installation of energy-saving materials.

As a result, anyone looking to install eco measures such as insulation, central heating and hot water systems, heat pumps, photovoltaic and solar thermal panels, and wind and water turbines, will no longer benefit from a reduced rate of 5% VAT and instead be charged the standard UK VAT rate of 20%. The change will be implemented during the next budget in April 2016.

Learn How to Build Your Own Passivhaus

Do you want to learn the skills needed to build your own Passivhaus? The Beattie Passive Training Academy are offering 10-day training courses dedicated to equipping self-builders with the knowledge and skills to aid in the building of a Passivhaus home.

For course dates, prices and more information visit beattiepassivetrainingacademy.com 

ERRATUM: In our World's Most Amazing Homes supplement (September 2015) we forgot to credit Jeremy Rawlings as the designer of The Grand Hall in Sussex. Apologies. Jeremy is at periodhome.net/frameset.html

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GLASS INNOVATIONS

Home

This section: Everything you need to create a brilliant individual home — from ideas, expert guides and designers' advice to other people's inspiring projects



Homes:

A Futureproofed Self-build P.22



Homes:

A Bungalow Re-envisioned P.40



Homes:

A Contemporary New Build P.70

- Plus:**
- Modern House Masterclass P.34
 - Getting Modern Stone Walling Right P.57
 - Designing a Landing P.81
 - An Expert Guide to Buying Ovens P.94

HOMES CONTEMPORARY-STYLE SELF-BUILD

Absorbing Views

Mike and Linda Bray's self-build journey may have been born out of necessity, but the striking home they've created with architect son Oliver Bray enjoys the very best of the sea views

PROJECT NOTES

Project:

Contemporary-style self-build

Location:

Hampshire

Dates:

Jan 10

– Jun 11

Size:

233m²

Land cost:

£400,000

Build cost:

£630,000

(£2,704/m²)

Value:

£1.3million+





Contemporary Exterior

This coastal new build is clad in a mix of render, zinc and cedar, all providing a low-maintenance finish. The south-facing façade features large areas of glazing to make the most of passive solar gain and views towards the sea, with an external, sheltered balcony being a prime viewing platform. Below, blockwork has been clad in granite to create external planters and seating, which complements the Eclipse granite paving from Marshalls



HOMES CONTEMPORARY-STYLE SELF-BUILD



Words: **Debbie Jeffery**
Photography: **Martin Gardner**
Styling: **Emma Hooton**



Some people dream about building their own home, but for Mike and Linda Bray the concept of creating a bespoke house was originally born out of necessity after Mike was diagnosed with multiple sclerosis. The couple knew that they would need to move from their three storey, waterside townhouse, but were loathe to settle for life in a bland bungalow or cramped flat.

“We moved to the townhouse in 2001 after I retired because I wanted to get in as much sailing as possible, and we had a pontoon for our boat right outside the house,” Mike says, “but the MS is progressive so we knew we would have to move eventually.”

Fortunately their son is Oliver Bray, the director of award-winning Winchester-based architectural practice OB Architecture, which undertakes projects across the country. Oliver suggested that, if his parents could find a suitable plot, he would design them an exciting, one-off house to cater for their future needs. “What started out as an unwanted move suddenly turned into a project and an adventure,” reflects Mike.

Eighteen months of fruitless plot hunting in and around the New Forest finally culminated in 2008 with the Brays discovering an ideal piece of land. A developer had purchased a small house set within a large garden and created two plots — one to build on and the other to sell. The third of an acre garden plot stands back from the cliff-top in Milford on Sea, which meant that building a two storey house would ensure sea views from the first floor rooms.

“Olly favours contemporary design, so we knew the house would be modern, and he worked hard to make the very best use of our



THE QUICK READ

➤ Mike and Linda Bray’s contemporary home was designed by their architect son Oliver Bray of OB Architecture. The reverse-level design – with the main living area positioned on the first floor – makes the most of the sea views

➤ Self-build provided the couple with a route to creating an individual and accessible home, futureproofed for Mike, who lives with multiple sclerosis

➤ The timber frame build is clad in a combination of untreated timber, zinc and self-coloured render, for a low-maintenance finish



HOMES CONTEMPORARY-STYLE SELF-BUILD



HOMES CONTEMPORARY-STYLE SELF-BUILD



First Floor Living Spaces

The living area on the first floor (top left) opens directly on to a balcony and has been carefully angled to enjoy views out to sea. A snug seating area (bottom left) has also been built beside the kitchen window to take advantage of the views. In the kitchen (above), the monochrome scheme continues with white granite bespoke worktops, and Perspex used as a splashback. Built-in storage in the living areas, created in MDF (a cost-effective solution), has been spray-painted in white

plot,” says Linda. “We gave him a basic brief, which included things like the number of bedrooms we wanted, and then sat back and waited to see what he would produce.”

Designing an Accessible Home

The resulting house has been thoughtfully designed with ground floor bedrooms and a lift to the open plan kitchen/dining/living space and balcony on the first floor — ensuring that Mike is able to access every room with ease. The building features a single storey section, roofed in sedum, which contains the garage, two bedrooms and a bathroom, creating a self-contained guest suite.

Incorporating a lift was one of the most important elements of the design. The lift cost around £13,000 to install in the double-height atrium, and opens into the ground floor hallway and the first floor dining area.

“Introducing a lift into an existing house can look very institutional, whereas our house has been designed from scratch to both

look good and cope with the restrictions of disability,” says Linda. “We wanted to buy the lift in the UK, but in the end we could only find what we wanted in Austria, and the company’s engineer came across and supervised the installation.”

The ground floor bedrooms, wide doorways and wetrooms ensure that Mike will be able to continue living in the house as his MS progresses. Sliding glass doors open directly to the terrace on the ground floor, with no steps or changes in floor level.

Achieving Planning Permission

“The site did present us with a few challenges,” says architect Oliver Bray. “First of all, it was set between two traditional low-lying thatched cottages that were identified by the planners as being of architectural significance in the local area. Secondly, the views out to sea were only achievable at first floor level, and thirdly, the front, less-private side to the plot faced south, meaning there would be a conflict between the road and the proposed garden that would front on to it.

“Following initial discussions with the planners, we established a framework within which we could build; we developed a concept of four interlocking forms that would give the accommodation required, while respecting the scale of the cottages either side and the important views they provided to the village.

“We proposed a long, linear timber clad form at first floor, set above a lightweight glazed section below, and a white rendered wing to the side with a projecting garage at the end to create a welcoming entrance courtyard. The composition is ‘anchored’ to the site by a



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double-height entrance hall that is clad on the outside in dark grey zinc. In spite of the sensitive nature of the site, the planners were very receptive to our contemporary approach.”

Externally, the structure has been clad in a combination of different low-maintenance finishes, which also include self-coloured white render and untreated cedar boarding — this monochrome palette continues inside throughout the considered interiors. The materials were specified with the coastal environment in mind. Glazing is a particular feature, with south-facing sliding glass doors looking out to sea and smaller windows to the sides, which guard privacy.

Achieving planning for the striking home did not, however, prove entirely plain sailing. “We live in an area of special character, and the parish council felt the design was out of keeping with neighbouring pastiche thatched cottages, which meant that we had to attend the council planning committee meeting,” says Mike. “I had three minutes to put our case forward, and it felt like I was standing in the dock pleading for clemency.”

The majority voted for the plans to be approved, allowing the Brays to sell their previous home to fund the build. The couple moved into a rented flat half a mile from their plot.

A Challenging Build

“Oliver recommended that the house should be timber frame, and we researched various suppliers — even travelling to Germany to visit one manufacturer,” says Mike. “In the end we opted for a local company, who took on the contract to build the entire house. They started in January 2010 but six months later they went bankrupt, having only completed the foundations and the structural steelwork.”

Luckily the Brays had not paid the company in advance and were able to take over the build themselves — employing some of the tradesmen who had previously worked on site. The process did cost them several thousand pounds, however, and meant that they had to cut back on one or two luxuries and gadgets. “When our builder went bankrupt it was a real low point, because we had



Above: Staircase

A frosted window was specified for privacy at the top of the American white oak staircase; the latter is illuminated to dramatic effect. It leads to the sitting room and kitchen diner on the first floor, where the stairwell acts as a divide between the two spaces. The monochrome interior scheme continues throughout, with Porcelanosa dark grey matt porcelain floor tiles laid over underfloor heating in the living spaces, and in rooms such as the dramatic ground floor wetroom (below)





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to take over the project management of the build ourselves, which was completely alien to us,” say the Brays.

“We had a lot of problems with the subcontractors, and ended up in court trying to reclaim £10,000 owed to us by the glazing contractor, so it wasn’t a straightforward build by any means,” says Mike, who has a degree in engineering and is now retired. “Someone advised us that we should trust absolutely no one, which sadly turned out to be true for many of the subcontractors.”

A High-Spec Home

Despite these unforeseen problems, the Brays have succeeded in completing their new home to an exceptionally high standard with help and advice from Oliver. The result is an energy-efficient, low-maintenance building, with predominantly tiled floors laid over underfloor heating, which is fuelled by an air-source heat pump. There is a ventilation and heat recovery system and a 5,000 litre rainwater harvester, which supplies the toilets with recycled water.

“We have a ground floor control room for all the plant, and Olly has designed built-in storage throughout the house, which helps to create an uncluttered feel,” says Mike. “Now we’re able to enjoy living close to the sea in a house that has been futureproofed for our needs. Working together as a family was an added bonus, and we’re extremely proud of the fact that such a beautiful house was designed for us by our son.” 

Living Room

The considered interiors are sleek, with discreet features such as window blinds recessed into the ceiling. Other stealth elements include a white wall that acts as a screen for the projector TV. The contemporary Contura woodburning stove is another feature of this room; wood is stored in a niche beside the stove



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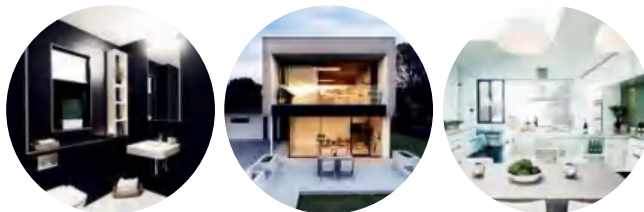
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The Project



Oliver Bray
Architect

THE ARCHITECT'S VIEW

We turned the traditional notion of the house 'upside down' by placing the large open plan kitchen/living/dining room at first floor so that we could take advantage of the lovely views out over Christchurch Bay during the day while cooking, eating and relaxing.

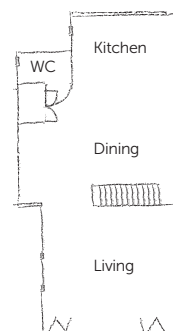
At ground floor level, a sun room to the front of the house opens out to a protected front garden that is bordered to the road by a tall rendered wall with playful slot openings, and to the driveway by linear planters to create a sunny, secluded outdoor space.

The bedrooms are arranged around a large double-height entrance hall, through which rises a bespoke disabled lift. Rather than hiding the lift within a discreet shaft, we took the decision early on to celebrate the vertical movement through the house by creating a bespoke shaft that is open to the living room and hallway below. We managed to source an elegant and moderately priced platform lift that we inserted into the shaft. The result is something that we could not have achieved through an off-the-shelf solution and is one of the real triumphs of the project.

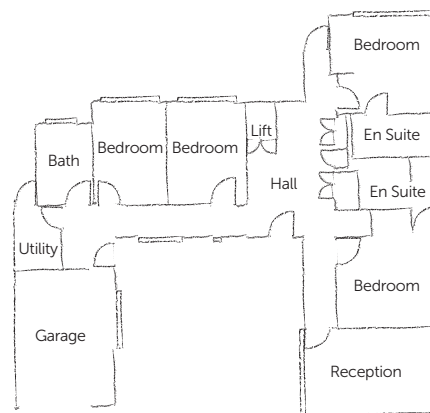
The open nature of the house makes it a very sociable place to be: you can be cooking upstairs while chatting to someone downstairs through the glazed balustrade around the double-height space.

The extensive areas of glazing are a constant reminder of the dramatic and ever-changing weather in this exposed location.

First Floor



Ground Floor



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Designing the 2015 Home

If you wanted to build a modern home very much of its time, what would you do? Architectural designer and TV expert Charlie Luxton explains how to approach the art of the contemporary



CHARLIE LUXTON

Architectural designer Charlie is the director of Charlie Luxton Design and a popular broadcaster, presenting 'Building the Dream' on More4

Will the 2015 home please stand up? Looking back at the early modernist masterpiece houses is a humbling experience. What is striking is that these early 20th-century buildings – 100 years old or so – still appear amazingly modern and relevant. Open plan living was coming into trend in the 1910s houses of Adolf Loos, and Corbusier and Frank Lloyd Wright were perfecting organic architecture and machines for living in the 1920s. Mies van der Rohe had sliding walls of glass and stripped minimalism in the '30s. The Eames House of the '40s was embracing mass-production and had already moved beyond modernist bombast and dogmatic aesthetics.

Surveying this pantheon of buildings, it is easy to wonder exactly what has moved on in the last 60 years — and that perhaps designers have all been doing cover versions ever since. However, there are issues and ideas being tackled by housing in 2015 that make them very specific to now. A number of trends can be seen in home design today that show where we are advancing and challenging the masters of the past.



"The hard, white-rendered, glass-walled, tight-arsed, shiny house has had its day"



NATURAL MODERNISM

Clean lines and simple shapes continue to be part of the 2015 home's repertoire, but there's a softer, more tactile element to interiors — introducing natural materials inside and out as well as frameless glass to better help incorporate the surroundings





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EASY ON THE WHITE

There's nothing clinical about this modern space — natural materials are evident throughout and the potential harshness of the double-height space is calmed by timber ceiling panelling



Contextualism

Place and context have become an increasingly important concept in modern housing. The big criticism of much 20th-century house design is that it ignores local building styles and the important narrative roles houses play in the feel of a town or village. Limited availability of materials traditionally meant there was a unity of appearance to housing, often dominated by a local stone or brick. Modern transportation broke that relationship and the result has not always been positive. Buildings are not like cars, chairs or almost any other product. They do not move and therefore need to relate to their surroundings in a permanent and unique way. The best 2015 homes have a much stronger relationship to their surroundings through their materials, details and style. This contemporary vernacular is not about mimicking or copying (much as the planners want us to) but bringing together the specific character of a place and its buildings with those of your new home. There are so many wonderful design ideas to reference in the vernacular buildings of the UK, that starting from scratch with no reference to them seems so last century.

Low Maintenance

Another major failing of much contemporary architecture is that it doesn't allow for the realities of time and ageing. Seemingly conceived in an idealised reality where time, weathering and decay

don't occur, the white rendered box (and its like) never look so good with green algae stains or if a beautiful white smooth plaster interior gets a boot scuff. It's the illusion of perfection and while many buildings look fantastic in the publicity shoots, they age badly. Ageing is inevitable and good buildings should, like wine, add a new layer of beauty through it. Natural, traditional and interesting materials like brick, clay tiles, timber shingles, stone, wood or metal can not only tie a building into its location but can age beautifully too. The 2015 home understands this and embraces it.

Careful with Glass

For much of the 20th century, walls of glass were a real statement of modernity; expensive and hard to achieve. In the 21st century the folding sliding door is ubiquitous — a stock response to maximise a view or create a connection outside. The reality, both then and now, is that too much glass can result in overheating in summer and the opposite in winter. While this can be overcome through good design and modern technology the truth is that a wall of glass often lessens the impact of a view, whereas a carefully composed window frames it and heightens its effect. Acres of glazing do little for acoustics or creating a sense of place, often resulting in echoey washed-out rooms that have no soul. The 2015 house is sparing with its glass, preferring quality of view and performance of window over quantity. This includes glass balustrades — so last century... ➔



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CONTEXT IS KING

The days of the one-size-fits-all approach appear to be over. White render still has its place but today's leading modern homes are all about responding to their unique context, whether it is nestling down to respect a view (above) or incorporating local materials that bed the new home into its surroundings

Energy Consumption

Perhaps the main thing to have changed since the wonder of early modernism and defines good architecture today is its impact, or lack of it, on our besieged environment. Superficially, at least, house design may appear to have not advanced much in the last 100 years, but functionally instead; how well insulated, sealed, ventilated and serviced they are has changed fundamentally. Many of these 20th-century masterpieces were awful to live in – too cold, too hot, too draughty and a nightmare to maintain – and it's taken the intervening years for technology to catch up and make them comfortable and affordable to heat. Increasingly, automation and integration of systems are key to further reducing energy consumption, achieving more with less. Low energy consumption, embodied energy, internal air quality and

responsible sourcing of materials are central to the 2015 house.

The Emergence of Fun

The modern home has for many years been a very serious place where people who drive German cars and eat muesli live in grey crisply ironed clothes.

The white rendered, glass walled, tight arsed, shiny hard house has had its day. The 2015 house has wit, humor and idiosyncrasy. It can parody itself, be quirky, irrational and fun. It references and responds to both its site and surrounding buildings. It cares for the planet, ages gracefully yet maintains the ambition and lessons of the modernist masters. Every building, no matter what the budget, is an opportunity to make the world a little better and the crop of 2015 shouldn't waste it. **H**

PROJECT NOTES

Project:

Contemporary extension and remodel

Location: Dorset

Dates: Sep 2013
- Dec 2014

Size: 380m²

House cost:
£310,000

Build cost:
£195,000
(£513/m²)

Value: £895,000



BEFORE



Front Elevation

Making the most of its large plot, this former bungalow has been subject to a radical remodel with a new first floor extension featuring twin gables (this contemporary take on a traditional element helped appease the local planners). A palette of contemporary building materials clads the exterior; here, cedar and slate-effect cast concrete tiles break up the front elevation



HOMES CONTEMPORARY REMODEL

Remodelled Retreat

Stuart and Elmarie Ward have created an impressive contemporary family home on a budget thanks to a radical rejig of their dated bungalow

Words: Daisy Jeffery Photography: Alastair Nicholls



THE QUICK READ

➤ Stuart and Elmarie Ward have transformed a dated bungalow on a large site in Dorset, creating a striking contemporary home on a budget thanks to an extension and remodel project

➤ In order to keep costs down and carry out work at his own pace, Stuart took on almost all of the building work himself — from demolition all the way to building the front door

➤ External insulation, render, timber cladding and slate-effect cast concrete tiles offer a complementary palette of building materials, giving this home architectural wow-factor

As a developer, Stuart Ward was well-placed for knowing how to create amazing homes, so when he came across a 1950s bungalow on a large plot in east Dorset back in early 2013 he already had strong ideas as to how to transform the dated building into his and wife Elmarie's dream home.

"There are lots of bungalows on huge plots in this area and there's a lot of SSSIs (Sites of Special Scientific Interest), so not many of these large plots are allowed to be subdivided," explains Stuart. "When we viewed the bungalow we could see there was a substantial five-bed house next-door and that gave us an idea of what we could get away with and what would be appropriate for the area. The property cost us £310,000 and we knew we wanted something modern that we could afford. We were driven by economics — the idea of creating a dream house while getting the most out of what we already had here.

"The project was also my way of getting back in the saddle after being ill. I'd previously been asked to build a Tony Holt house in Poole for a client and despite having never taken on a new build I was keen to take up the challenge. Towards the end of the project, however, I fell ill with acute symptoms of chronic fatigue syndrome which left me exhausted and struggling to complete the most basic of tasks, so we decided the best solution here would be to extend." ➤



Rear Façade

Along with the new storey, the rear of the property has also been extended to make way for the open plan living spaces. To the rear, the twin gabled design has been continued, with enclosed balconies to the first floor cutting into the gables. Full-height glazing here and on the ground floor allows light to flood the interiors







A Complete Redesign

With a clear idea in mind for the extension and remodelling of the old bungalow, Stuart approached architectural designer Tony Holt to help visualise his plans and turn them into a reality. “I had an idea of what I wanted and knew I was after something modern with twin gables. I also knew that in order for the project to be comfortable with the planners the house had to have a traditional element to its design as there were no contemporary houses on the road,” explains Stuart. “I knew Tony from the Poole project and had seen a lot of his designs on his website which I liked, so I put together CAD and render drawings and then sent these to him.”

Part of Stuart’s brief was to try and keep the spaces as versatile as possible — for instance what is now the snug and open plan dining area could easily be swapped around. In order to maintain his healthy lifestyle, the brief also included a home gym. “We looked at what was already there and what we could and couldn’t work with,” says Stuart. “What is now the cinema and gym, however, was predetermined by the existing bungalow; the rest of the spaces on the ground floor which form part of the extension are more flexible. We wanted open plan areas but it was also important to plan in those quieter spaces to retire to in the evenings.

“The planners were pretty good,” continues Stuart. “It’s a unique build on a road with an eclectic mix of houses. The only issues we had were regarding the proposed ridge height, which we agreed to lower by half a metre. Our application was granted first time.”

Above and Far Left: Kitchen

Thanks to the rear extension, a large open plan kitchen/dining/living space dominates most of the ground floor and can be accessed directly from the double-height entrance hall (opposite, top left) while a curved obscured glass wall zones the entrance from the rest of the living accommodation. Here, the same slate-effect cast concrete tiles used for the exterior have been used to clad the fireplace as well as the feature wall in the hallway. Full-height glazed sliding doors meanwhile break out on to the rear terrace

A Rebuilt Bungalow on a Budget

Work started on site in September 2013 with Stuart taking on the role of project manager and builder, and together with a local labourer, he began semi-demolishing the old bungalow to make way for the rear extension, along with removing the internal walls to open up the ground floor. Towards the end of digging the footings for the new extension, however, they suffered from heavy rainfall which caused the water table to rise — the works ground to a halt from the end of October right through to February 2014 as a consequence.

Once work was back underway, the build itself went quickly thanks to constructing the walls of the new extension in a single-skin of 240mm-thick aircrete blocks bonded together with adhesive. The ➡



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HOMES CONTEMPORARY REMODEL



bungalow was extended to the rear by approximately 3m and steel thrown up across the open plan space to open that section of the ground floor up, making the link between old and new seamless. “This thin-joint construction technique is a brilliant way to build quickly and we imported the materials from Europe,” says Stuart. “It was just myself and one other guy handling the building work. We could have done it quicker and perhaps cheaper by getting the professionals in, but for me this was like therapy and took my mind off my illness and gave me a focus without any pressure of getting the place built by a certain time — I could just take it easy.”

In order to provide a contemporary exterior, a slate-effect cast concrete tile was chosen for the detailing. “Where we have elements like the front door we then used a cedar batten to add contrast. By using different textures it helps to break up the façade,” says Stuart.

In total the project took around 18 months to complete, including the four months where the majority of the work was put on hold due to the rain. “Coming in from the on-site caravan every day and seeing the spaces come together really allowed us to see what did and didn’t work — enabling us to make changes along the way if necessary. With doing it yourself you’ve got that ability to make changes, whereas if you’re going through a team of contractors then changes can involve cost implications,” says Stuart.

A Place to Call Home

The house was completed in December 2014 – although as Stuart points out, a project is never truly finished – and what was once a tired bungalow on a large plot with cramped accommodation has become a large contemporary dwelling which makes the most of its site thanks to an extensive remodel. Meeting the Wards’ brief, the property has been opened up to the rear to feature a large open plan kitchen/dining/living space which now works well for entertaining and large family gatherings. Equally, the home offers private spaces too for when Stuart and Elmarie need some peace and quiet. Upon entry, the double-height hallway with galleried landing and staircase (built by Stuart) is also partially open plan to the rear, with a curved glass wall zoning the entrance space while allowing guests to flow through into the kitchen/diner and providing views out to the rear garden from the front door.

Open plan accommodation has also been introduced in the new master suite. “We saw the idea of the open plan bedroom and en suite in a hotel we visited,” says Stuart. “As the new master bedroom was large we knew that this concept could easily be accommodated here. The slate-effect cast concrete tile fireplace (the same material

➔

Left: Glazed Gables

Maximising on natural light, the twin gables to the front and rear of the property have been heavily glazed in order for the bedrooms upstairs to benefit from full-height views of the surrounding landscape. To the rear, glass doors open out to sheltered balconies with glazed balustrades — providing unobstructed views from two bedrooms

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also used on the exterior, hallway and ground floor fireplace — creating a sense of continuity) adds character to the master suite and helps break up the bedroom and bathroom space. It's great to sit in the bath and be able to look through the fireplace and enjoy garden views over the balcony on the opposite side of the room, and glimpse the views further beyond that."

In order to bring light into the home, heavy doses of glazing have been added to the front and rear, with glazed gables to the new first floor, along with full-height windows to the front and expansive sliding doors to the back — all triple glazed and slightly tinted for privacy. The way that the house is orientated on the plot means that there is now plenty of light entering from the rear elevation in the mornings and the house is lit from the front in the evenings.

"The home really works well for us. We wanted a home which stood out from the crowd but for a reasonable price and this project definitely delivered. Ultimately though I see the success of the house when people are passing by and they slow down to take a look," says Stuart. "It really is a tribute to Tony and the amazing detail that he put into the design and we now have a scheme which works really well. We were fortunate enough to have a nature reserve at the end of the garden too. It was a case of right plot, right time."

Following the success of this project, has Stuart been bitten by the build bug? "I think it would be a shame not to take everything I've learned and apply it again. I'd absolutely love to do another project and we are already looking!" he admits. "Growing up with parents in the army I was always moving around as a child and even now I only stay somewhere for a few years before moving on, so watch this space!" **H**



Above and Top: Master Suite

The impressive master suite on the new first floor has been left open plan to incorporate the bathroom — cleverly zoned thanks to the central double-sided fireplace which has been clad in the same slate-effect cast concrete tile as the exterior and ground floor feature fireplace. A dual-aspect can also be enjoyed thanks to full-height glazing, with an enclosed balcony overlooking the rear





Glossy white, GWH



Designers: Harrit & Sørensen

SCAN 66 WHITE

PURE WHITE

White is known as the colour of purity and natural beauty.

By choosing white for your wood stove, you can combine it with almost any other colour in your interior. White creates a peaceful and relaxing atmosphere.

The organic shape creates a beautiful frame around the fire and the view to the flames is maximised through the use of a glass log retainer. Hang it on the wall or choose between three different leg options, where one has multiple choices for colour inlays.

The series is also available in black paint.



Scan 66-2



Scan 66-3



Scan 66-4



Scan 66-1



HOMES CONTEMPORARY REMODEL

The Project



Stuart Ward
Homeowner

HOMEOWNER'S VIEW

With any extension you have to compromise to a point, but we tried to crowbar things in where we could. From the front door you can now see straight through into the garden and the whole space works really well — it's great. Open plan living brings with it its own set of challenges like noise, etc., but if there are other rooms available for some quiet time then that's not a huge problem as we have found. We entertain a lot and so the house works really well for us.

It's great to build your forever home but think carefully about your projected end value because it's very easy to go overboard and overdevelop. Ultimately you will want an asset value worth 20-30 per cent more than you have spent to justify all your hard work. We wanted a house that stood out from crowd for a reasonable cost and this home has certainly delivered.



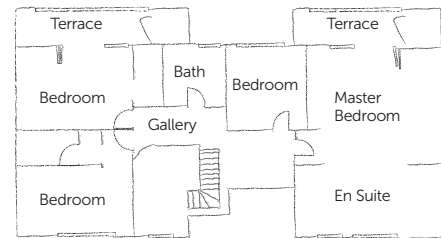
Tony Holt
Designer

DESIGNER'S VIEW

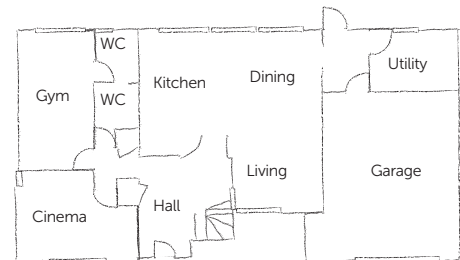
The existing bungalow was very cramped and failed to make the best use of the site. By adding a new storey this provided a cost-effective way of increasing the footprint of the building and the rear extension allowed for modern open plan living which breaks out on to the rear amenity space which is covered thanks to a roof overhang.

The design worked to retain elements of the bungalow to keep costs down while offering increased living accommodation. The external façade also underwent a contemporary facelift. The build cost Stuart achieved was just phenomenal — not many people could accomplish what he did. He even built the staircase and front door himself!

First Floor



Ground Floor



SUPPLIERS

Architect Tony Holt.....01202 208331; tonyholt-design.co.uk
Structural engineer Sean Playford01202 240316
Bio-ethanol fires, flooring, bathroom sanitaryware, slate-effect cast concrete tiles, external insulation, render, kitchen and taps Leroy Merlin, Polandleroymerlin.com
Kitchen units TradePointtrade-point.co.uk
Builders' merchants Travis Perkinstravisperkins.co.uk
Buildbasebuildbase.co.uk

BUILD TIME

Jan 13 Put offer in for the bungalow
Jun 13 Planning application submitted
Aug 13 Purchased bungalow
Sep 13 Planning granted
Sep 13 Part demolition and foundations
Oct 13 - Feb 14 Work ground to halt
Apr 14 Weathertight stage
May 14 First fix stage
Jun 14 Second fix stage
Dec 14 Moved in

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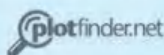


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GALLERY

Contemporary Homes

Need ideas? You've come to the right place



Robert Dye Architects

This visionary energy-efficient home is made up of a series of interlocking render and burnt larch-clad boxes sat on a concrete base with glazing cleverly positioned for privacy



Stan Bolt Towering panels of curved glass form a double-height atrium in this contemporary cliffside home



Unique Environments

Large elements of glazing over three storeys prioritise this home's views



Stan Bolt Entered via a bridge at the top of the site, this copper-clad home captures the views through full-height glazing



Richard Dudzicki Associates

A splash of orange adds impact to the white render on this modern SIPs build



Paul Archer Motorised aluminium panels cleverly hide this California-style home within the landscape, acting as mirrors



Studio Bednarski A grill-like window structure adds architectural interest to this modern end of terrace home



Hyde + Hyde Architects A master bedroom timber 'box' adds contrast to this California-influenced home



rdarchitects (Bristol) Western red cedar with sliding sun screens adds texture to the upper level of this home



McInnes Gardner From rundown bungalow to showstopping villa clad in stone, glass and render



Matt White This urban self-build on a former side garden is packed with exciting features — including a deceptive entrance



Stan Bolt The ultimate holiday home, this white rendered gem in Salcombe overlooks the sea



Hall + Bednarczyk This organic-style home uses stone and glass to masterly effect



Studio West Architects Fibre cement cladding and aluminium windows offer a sleek finish to this single storey home



Icosis Architects This striking stone and larch home is designed to be the Scottish version of an Australian beach house



Hall + Bednarczyk Stone, steel and timber blend traditional materials with modern style in this new build



Annie Martin This stylish home with timber bridge entrance makes the most of its beach views through well-placed glazing

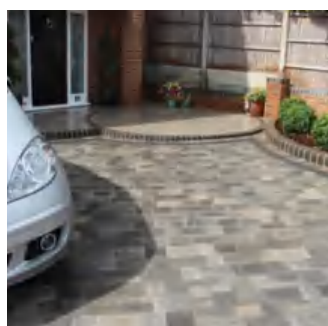
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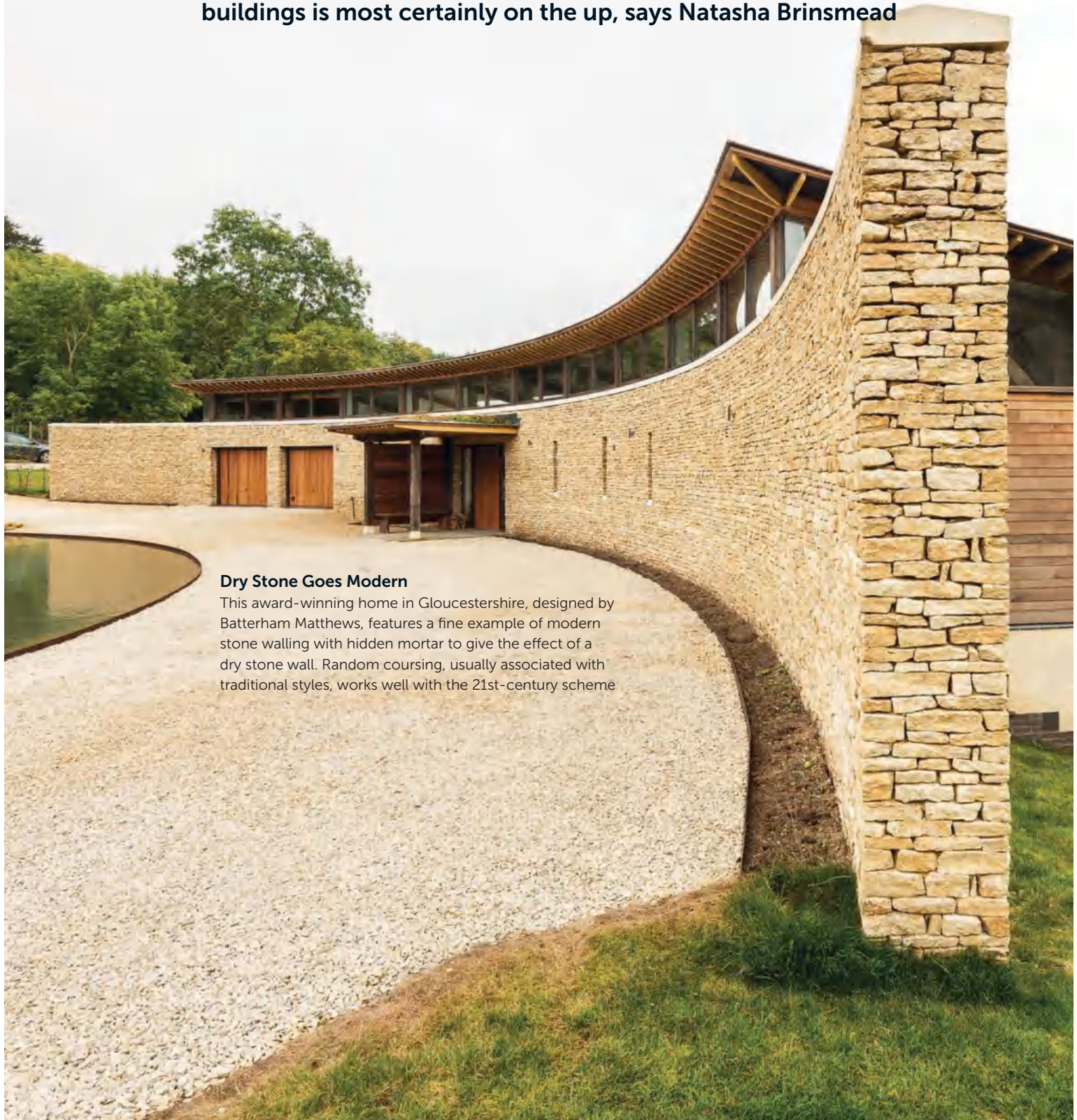
DESIGN DETAIL

Modern Stone Walling

While stone as a building material is nothing new, its use for contemporary buildings is most certainly on the up, says Natasha Brinsmead

Dry Stone Goes Modern

This award-winning home in Gloucestershire, designed by Batterham Matthews, features a fine example of modern stone walling with hidden mortar to give the effect of a dry stone wall. Random coursing, usually associated with traditional styles, works well with the 21st-century scheme



Despite being used in construction since as long as anyone can remember, as a cladding material for contemporary homes, natural stone has only recently started to be seen on the list of must-have design features.

While it has featured over the years in some of the most iconic buildings – think of the architecture from the 1950s and 1960s by Frank Lloyd Wright, Richard Neutra and Kenneth Lind – it has only been in the past few years in the UK that it has come to the forefront of cutting-edge design.

“It is definitely catching on as a cladding material,” confirms Director of Riverdale Stone, Martin Fildes. “It is a material that suits all styles of property and we have seen it become much more popular recently for new homes — even kit homes and modular homes, such as Baufritz designs, are using it now.”

Most commonly used as a cladding, fixed to a concrete backing block but also suitable for timber frame constructions, natural stone is laid in much the same way that a dry stone wall might be — even on contemporary homes.

“People are often misled in thinking that a random stone wall won’t suit contemporary homes, but it does,” says Martin. “We recently did a project for a property developer who at first thought the best option would be to go for all coursed stone to get the contemporary look he was after. In the end he went for a random stone and is really pleased with the results.”

Using local natural stone in general is a good, eco-friendly choice, but opting for random stone over coursed makes it even more environmentally sound. Used in this way, the stone is simply taken straight from the ground and used as it is, while sawn stone requires more of a manufacturing process.

Although the stone is often constructed in much the same way as dry stone walling, some kind of fixing is required. Brick ties are usually used, and a mortar applied to the back of the stone, kept hidden from view.

“The stone used for this type of project is usually around 150mm thick, although the harder the stone, the thicker it tends to be,” says architect George Batterham of Batterham Matthews, who has completed several award-winning stone-clad contemporary projects.

There are a few considerations to bear in mind, however. Perhaps the main concern for many is the cost — using stone as a cladding material is undoubtedly an expensive business.

“Although the materials are relatively cheap and only a little mortar is used, labour is the expensive part,” explains Martin Fildes. “You would be looking to pay upwards of £200/m² for supply and fit.” You also need to bear in mind that many companies specialising in this type of work will be travelling to the project

“Although the materials are relatively cheap, labour is the expensive part... upwards of £200/m² for supply and fit”



RICHARD DOWNER C/O WILL LASDUN

and may need to factor in accommodation to the final costs.

While it is relatively easy to find a good bricklayer or dry stone waller, pinning down a tradesperson skilled in contemporary stone cladding is a little more complicated.

“This is a job that is caught in the middle of two trades,” explains Martin Fildes. “Traditional stone wallers tend not to have the experience of working on a building site, while bricklayers are unused to the random nature of stone — there is a degree of training required.”

Then you need to factor in the length of time that the stone takes to lay. “Good stone cladding is a work of art really,” says Martin. “In reality you could expect no more than two metres a day to be completed for a good job.”

At Riverdale Stone, the stones are shaped using only a hammer — no chisels or saws. “You need the stone to have a flat bottom and top to create the tight joints required to conceal the blockwork beneath — it takes time,” explains Martin.

George Batterham agrees: “It is more expensive than other cladding materials and takes a long time,” he says. “For this reason we tend to use it just for the front of houses, combining it with another cladding material on the rear.

“We use quite a lot of cedar cladding with stone,” he continues. “Stone has a certain mass and solidity to it and it is nice to play this off with something lighter, such as cedar.”

In terms of visual design, the stone you choose will partially come down to personal preference, but using a local stone remains the best option. “It is best to use a stone that is local to the area. It adds a degree of regionalism and makes the house look appropriate to the area, even when the design is contemporary,” explains George Batterham.

Look at other projects that have successfully used stone in a contemporary way and take your cue from them. “Stone cladding should come up from the ground,” explains George. “It shouldn’t be used high up in sections — it doesn’t look right.”

“Remember, despite its relatively high cost, the stone cladding is the very first thing people are going to notice about the house. Make the most of it — it looks fantastic when lit up from below,” adds Martin. “It also requires no maintenance once built, and is one of only a handful of materials to visually improve with age.” **H**



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THE BEDROOM



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THE KITCHEN



DAVID MORRIS C/O FIRELY WOOD

Understairs Kitchen

Making the best use of the space you have available usually means taking a very tailored approach. In this case, in order to maximise the size of the kitchen, the space under the stairs has been utilised for a run of kitchen units, as well as the range cooker. Using glazed balustrades and open treads in combination with the large rooflights means natural light reaches all areas. ➡

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Fibre cement Cedral Click was chosen by a self builder in Northamptonshire to achieve an architectural fusion between their property's impressive angular design and the neighbouring Grade II listed church spire (above). The slate grey Cedral Click works together with the honey coloured stone to make the most of sunlight, shadow and sightlines in this beautiful Conservation Area.



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Cosy Reading Room

All too often space is at such a premium that we forget our homes are meant to be relaxing retreats, as well as places to perform everyday practical tasks. If possible, dedicate one room (even a spot on the landing will do) to something based on taking time out.

Here, a reading room, filled to the brim with books, opens out to a balcony.



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THE BATHROOM



NIGEL RIGDEN

Discreet Window

It's a common conundrum — how to get plenty of light into the bathroom without compromising your modesty. Here, a section of glazing in the roof, combined with two tall yet narrow windows either side of the freestanding bath, have solved the problem. **H**



Green Building

Architect Tom Russell and his wife Hannah have built a timber-clad modern family home in Bristol brimming with energy-efficient technology

Words: Nicola Owen

Photography: Simon Maxwell

THE QUICK READ

➤ Tom and Hannah Russell have self-built a contemporary-style eco home on their Bristol plot overlooking the city; retaining the existing cottage on site to be used as a future rental

➤ To create an energy-efficient home, architect Tom installed an array of technology including solar panels, a mechanical ventilation heat recovery system, insulation and triple glazing

➤ Marrying old with new, a brick courtyard within the historic walled garden has been built to act as a modest entrance

When architect Tom Russell, of practice Emmett Russell Architects, and his wife Hannah came across a rundown cottage on a hillside plot in Bristol back in August 2011, they instantly saw the potential to create a family home, but knew it would take some work — weighing up the benefits of the site against the challenges the location presented. “The plot with the almost derelict caretaker’s cottage was at the end of a narrow residential Georgian street making any build tough logistically — plus there were neighbours to think about,” he says. That said, Tom grasped the opportunity and joined in the bidding to buy the plot.

➤



PROJECT NOTES

Project:
Contemporary
self-build

Location: Bristol


Dates: Mar 2013
- Dec 2013

Size: 135m²

Plot cost:
£300,000

Build cost:
£260,000
(£1,925/m²)

Value: Unknown

The image shows the rear elevation of a modern house. The exterior is clad in horizontal timber slats. A large veranda with a wooden deck extends from the house. Above the veranda, there is a structure with exposed wooden beams and a translucent roof, likely made of louvres. A large triple-glazed window with a dark frame is visible on the right side of the veranda. The interior of the house is visible through the open sliding door, showing a dining area with a wooden table, blue chairs, and a bookshelf.

Rear Elevation

The painted timber-clad south-facing rear façade features a large veranda with louvres above — acting as a shaded extension to the house and preventing overheating in the summer months. Triple-glazed windows from Velfac help efficiency

HOMES CONTEMPORARY SELF-BUILD



“The property went to sealed bids. The key to winning it was to submit an unconditional bid as it was much more attractive to the vendor,” explains Tom. “After spending a year or so developing designs, and negotiating with neighbours, securing planning permission for the house was relatively straightforward. The key was trying to make sure all the neighbours were on board. Being on a hillside and in a Conservation Area we made an effort to ensure the property wasn’t too high and didn’t block anyone else’s views. It was also important to keep the neighbours on side as, with the difficult access to the site, without their co-operation we could have had a situation where we had planning permission but no access to the site, or access which was restricted and difficult. Thankfully, they were very supportive — the sellers had previously attempted to get planning for four homes and perhaps us building just one family home seemed like the more favourable option.”

The Design and Build Process

For Tom, the first – and perhaps most important – decision to be made was whether to demolish the cottage and build new, or to renovate what was already there. “Our decision-making process ➡

Right: Modest Entrance

Wishing to create a relationship between the old cottage and the new build, Tom designed an entrance courtyard to the property built in brick to sympathise with the existing dwelling, while the timber visible on the first floor of this elevation gives a hint to what lies beyond



HOMES CONTEMPORARY SELF-BUILD





about the plot and the cottage was driven by cost,” explains Tom. “Building a new house does not attract VAT whereas extending the cottage would — the VAT could add an extra £50,000 to the build costs. After living in the building for 18 months we took the decision to build a new home while keeping the cottage to live in during the build and renovate it at a later date, on the basis that it could be rented out in the future.”

Retaining the cottage also presented Tom with an interesting design matter. “I wanted to resolve the relationship between the old cottage and the new house. To this end I decided that the entrance to the house would be partially built using brick from an extension that we took off the cottage and to retain the Georgian walled garden.” The solution works, and a new entrance courtyard serves to enhance the new build. As the modest front door opens, the cinematic vista of the city is revealed via the huge glass panels that create the rear of the house.

It was this same view that drove Tom’s design. “The footprint of the home was driven by our desire to live in the light and to be able to see the terrific views of the city that the plot afforded,” says Tom. “The house is a simple diagram divided along the principles set down by American architect Louis Kahn, where the spaces are defined by those who are served and those who are serving — meaning all of the ‘served’ rooms are on the south-facing side and those for the servant, i.e. supporting spaces, are on the north side of the house.

“When we designed the house we also wanted to ensure everything was kept simple,” Tom continues. “Having learnt from a previous project, I knew that groundworks can eat into your contingency fund and so we made sure this project would be simple in order to

keep the costs down. The floor was therefore built using beam and block and the house is of timber frame construction, which was also key to being able to achieve the insulation levels we were after. The only thing that we struggled with during the build, however, was that due to the restricted access, no large lorries could access the site. Therefore instead of having a prefabricated timber frame delivered to site and erected in a couple of days, the timber frame had to be stick-built on site and took six weeks.”

A Green Home

One of the important aims for Tom when creating this home was to make it as eco friendly as possible. “The ambition here was two-fold: I wanted to create a home that did not have any heating requirements — along the principles of the Passivhaus concept — and to be as environmentally responsible as possible in the build itself,” he explains.

Above and Opposite: Open Plan Living

Carefully positioned on the south-facing side of the home, the open plan kitchen/dining/living space acts as the hub of family life. Upgraded finishes such as the polished concrete floor add wow-factor while remaining warm underfoot thanks to Tom installing underfloor heating. A Rais woodburner in the snug provides additional heat. Recessed bookcases provide ample storage in the living area, giving a streamlined effect, while light flows through the space thanks to a rooflight above the Howdens kitchen and sliding doors from Velfac

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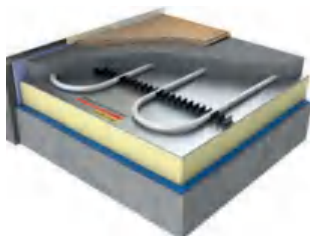
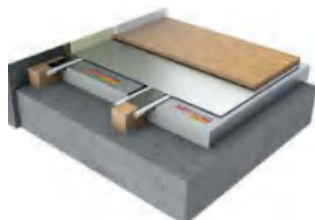
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Right: Family Bathroom

In keeping with the internal monochrome palette, grey tiles and panels provide a crisp contrast to the white sanitaryware in the family bathroom. A rooflight above allows light to enter this space while offering a high degree of privacy




As a result, the eco features that have been designed into the house are multiple. “The roof and walls have Warmcel insulation within the main structure wrapped with wood-fibre insulation externally,” explains Tom. “I paid special attention to ensure airtightness, carefully considered the triple-glazed Velfac windows and installed a mechanical ventilation heat recovery system to counteract condensation and promote air flow too.”

Solar panels have also been added to provide the home with hot water and a large highly insulated hot water tank has been installed to store the water, with a system boiler rather than a combi-boiler acting as a back-up when needed.

Given the British weather, Tom wanted to ensure he was covered from all angles and so he installed a boiler plus a woodburning stove and underfloor heating to the ground floor for when the winter kicked in. A timber veranda was then added to provide shade to the ground floor rooms in summer.

Managing Costs

Just as he advises his clients to do when working on his day job as an architect, Tom instructed a main contractor for his own project with a price for the whole job, but making changes down the line caused for some of the costs to increase as a result. “I added the solar panels, upgraded the ground floor from timber to polished concrete and stained the external timbers. Those tasks are cheaper done upfront,” admits Tom.

The home is now complete and functioning to the couple’s expectations. “The commitment to sustainable building and a fuel-efficient home was worth it in every way,” he says. “Our gas bill is 85 per cent less than similar-sized conventional homes and it is always comfortable and draught free. More importantly, the house is a real pleasure to live in and we never tire of the fantastic views across the city.” 

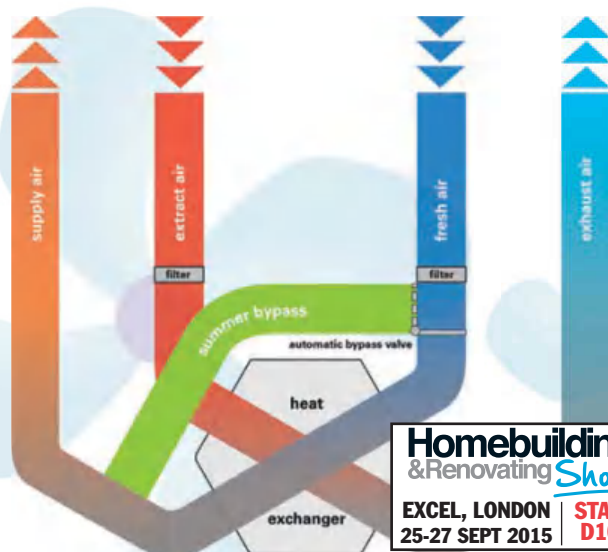


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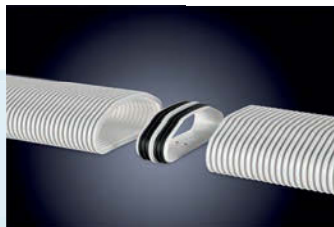
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HOMES CONTEMPORARY SELF-BUILD

The Project



Tom Russell
Homeowner
and architect

HOMEOWNER'S VIEW

The house has been designed so that all of the main rooms face onto the garden and the south-easterly views across the city. This allows the main living spaces to connect in a really open way with the garden. The open plan kitchen/dining/living space provides a focus for family life and the snug provides a cosy space to retire to in winter.

With projects like this you need to be realistic about costs from the outset. Don't believe what you are told in some of the magazines or on TV. There should be very few unexpected costs with a new build if you plan properly from the outset. VAT rules also give new builds a big advantage over renovation projects.

The whole process has been fantastic. The house is designed around the views and they never disappoint. The home has felt warm and draught free and the gas consumption has been about one-eighth of the consumption of the average three bedroom house, so we can't complain.

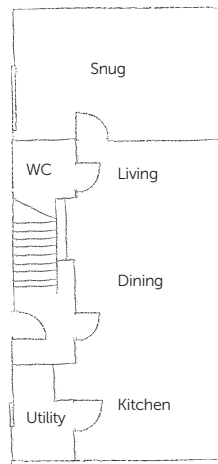
SUPPLIERS

Architects Emmett Russell Architects0117 907 0492; emmettrussell.co.uk
Main contractor Greenheart Sustainable Construction0117 942 9717
Structural engineer Structural Solutions01582 768960
Windows and sliding doors Velfacvelfac.co.uk
Insulation Warmcelwarmcel.co.uk
Kitchen carcassing Howdenshowdens.com
Q-Tee woodburning stove Raisuk.rais.com
Solar thermal panels Kingspankingspansolar.com
Kitchen tap Frankefranke.com
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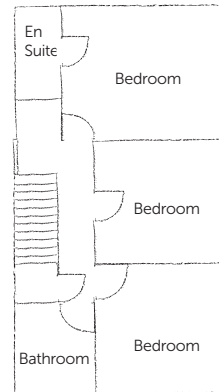
BUILD TIME

Aug 11 Plot purchased
Jun 12 Planning application submitted
Aug 12 Planning permission approved
Mar 13 Work started on site
Apr 13 Foundations completed
Jun 13 Built to weathertight stage
Aug 13 First fix stage
Oct 13 Second fix stage
Nov 13 Final decoration
Dec 13 Moved in

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First Floor



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BUILDING TRUST



How to Get Landings Right

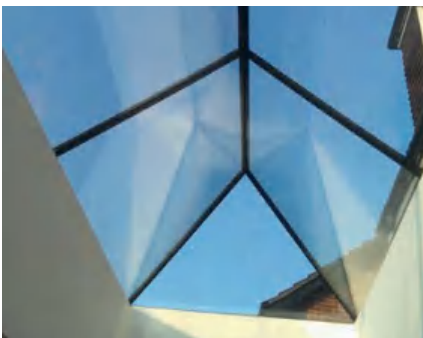
Don't view your landing as wasted space — with a bit of creative thinking it should be anything but, says Natasha Brinsmead

1: BRING IN NATURAL LIGHT

Landings, and in particular those in older homes, are often almost completely lacking in natural light sources. While this is not a problem for many, it can be an issue if you want your landing to become a space that you can enjoy in a capacity other than acting as a break between floor levels. The problem with this area of the home is often that it lacks exterior walls where you could insert traditional windows, as all rooms usually lead off it.

There are several ways in which to overcome this issue. Using rooflights, for instance, in the landing area can bring a lovely, pure light flooding in. If you haven't got space for a rooflight, a light-pipe is a good alternative.

If you find neither of these are viable options, borrowing light from elsewhere is a good idea. Keep the stairwell open and consider a glass or a visually unobtrusive balustrade, and use glazing in your front door or introduce sidelights either side or a fanlight above.



2: CREATE WOW WITH A GALLERY

A galleried landing makes for a dramatic focal point in any home. Although this is predominantly thought of as a more traditional or classically inspired feature, there are plenty of ways that the idea can be — and often is — adapted for contemporary homes, with 'floating' staircases

emerging from sweeping glazed balustrades, or industrial-style designs made of concrete and steel.

The double-height spaces that are created through the use of galleried landings are particularly striking and give the home an open and airy feel.



3: DON'T FORGET ARTIFICIAL LIGHTING

While homeowners spend a long time coming up with lighting design schemes for the main sociable spaces of the home, the landing can often be neglected, yet lighting is just as important here as it is elsewhere around the house.

Even the smallest of landings needs adequate light. Recessed downlights are a good way to provide background light, while a large pendant hung over the staircase can make a big statement, bringing the space to life. Wall lights and floor washers add a warm, cosy feel and are useful when set on dimmers for providing a soft glow — perfect if you have children who like a little illumination outside their bedrooms.

4: THINK BEYOND CIRCULATION SPACE

Think beyond using the landing as just somewhere to access other rooms and levels. Give the landing purpose and consider locating a 'room' or dedicated activity here — the landing tends to be located away from the hustle and bustle of the main living spaces and can afford great views out over the garden too. In the same way, building in a window seat into this space and designating this area as simply somewhere to sit and contemplate is a great idea. Bookcases can be built into balustrades to save on space, or above and around doorways.

Above: Lighting features such as stairs, shelving and handrails can add wow-factor to landings;

Right and Below: Ensure your landing is more than wasted space by using it for storage or seating



5: HALF LANDINGS COUNT, TOO

Don't discount smaller half and even quarter landings. Even if they are too small to make into a 'room' in their own right, a half landing can make the perfect spot for a built-in bookcase, a feature window seat, storage for toys and other household items, or even a shower room if space allows.

Custom-made storage solutions tend to work best in these areas as they can be awkwardly shaped. The half landing is also a great spot for a small home office, located away from the rest of the house — turning wasted space into something useful.

Designers on Landings



Richard McLane
is the Design
Director at
Bisca
(bisca.co.uk)

"A Gallery is a Must"

A landing has both form and function. Functionally, turning the direction of a staircase can be done by winders or by landings. A single quarter landing turns a staircase 90°, while the use of two individual quarter landings or a half landing turns the staircase through 180°. Half landings don't have to be oblong and can be designed to hug curves in walls and circular stairwells — sometimes referred to as half-moon landings. Intermediate landings, however, are typically used in the transition from single to multiple

flights, or vice versa.

If space permits, then a galleried landing is a must. As the name suggests, a galleried landing is an excellent place to display objects and artefacts collected over the family's lifetime. Galleried landings are also a perfect place for intimate seating arrangements providing an area to pause and reflect, away from the humdrum of family life. Landings are best executed when integrated into the staircase. Good design always comes down to proportion and elegance, and landings are no exception.

"Bring in Daylight"

Think about daylight. In semi-detached houses there is usually a side window, but in most terraced houses the only way to bring daylight in is through the roof. A good solution is to take out the whole ceiling above your landing, opening up the space to the underside of your roof. You can then line it out with insulation, plasterboard and skim, and put in a couple of rooflights. This will not only flood light down into the heart of your first floor, but also add an uplifting sense of vertical spaciousness.

Rather than live with that 'box room' that so many houses have, which is really too small to be useful, consider opening it up to the landing to create an open study area. The window, desk and seat give the landing a more human sense and scale as well as more generous daylight, while the study feels much more open and connected to the house as a whole.

The unusual property of a landing is that by definition it is adjacent to a double-height space, namely the stairwell. Try to see this as an opportunity for interesting design.



Hugo Tugman
is Founder of
Architect Your
Home and Interior
Your Home



Matt White is the
Founder of MATT
Architecture
(mattarchitecture.com)

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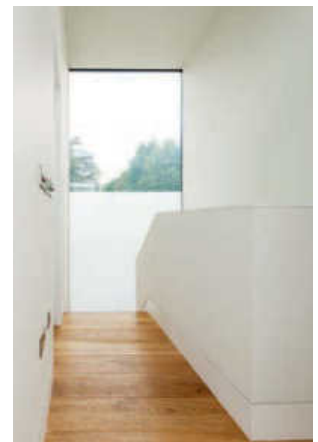
The stair landing provides a terrific opportunity to create delight and interest in any home. While its function is mostly practical, it's also a key component of the social side of a dwelling. In a private family home it's where you wait cross-legged for the teenager to get out of the bathroom, but in a Disney movie it's where the belle of the ball first appears on the grand stair into the ballroom.

In my own house, the position of the stair's half landing (**right**) created the defining feature of the elevation — a large

oriel window that cantilevers over the front door. Externally this creates a porch over the entrance while from the inside it supports a double-height window which gets natural light deep into the building plan — offering great views from the upper landing down the full length of the street.

There is a problem with this of course which is that the view out is matched by the view in — not great for anyone as the family stumble half-naked and half-awake between the bedrooms

and the bathroom each morning in full view of the street. We tackled the issue by applying an electronically switchable smart film to the window on the half landing which can be flipped between transparent and opaque at the touch of a button. The film is split horizontally which means that we can have the bottom of the window opaque, maintaining privacy, while the upper part is transparent, providing views to the sky. In many ways this is a very traditional device, much like a restaurant stall-riser or Edwardian vanity screen, though with a very 21st-century digital twist which has made our half landing one of the children's most favourite places as they play 'now you see me — now you don't' with the world outside. **H**



SIMON MAXWELL

REMODELLING

Before & After

A 1990s bungalow receives a complete overhaul. Architect Tom Williams explains



Before



TOM WILLIAMS

Tom (second in from right) is Director at architectural practice ID Architecture (team shown), specialising in both residential and commercial projects

The homeowners originally had another architect on board, and although the design had achieved planning permission, the proposal wasn't well received by the planners, which meant that the clients had to make a lot of sacrifices. By the time it came to starting on site, they weren't satisfied and decided to not go ahead. After a Google search, they came across us and we met them on site and offered a different angle on what to do with the existing red-brick bungalow that was more appropriate to their needs — they loved it.

The brief was to design a two storey, five bedroom family home that provided light, spacious open plan living including an accessible bedroom and bathroom at ground floor level. The original bungalow belonged to the client's father so there was a sentimental value attached to it. However, because of the specific requirements the homeowners had, this meant we would have to remove internal walls and demolish certain as-

REMODELLING BEFORE & AFTER



pects of the structure. Through discussions with the structural engineer, it became clear that the property would need extensive reconstruction so we prepared an alternative proposal for a modern, new build, two storey family home over the existing floor structure. This was considered appropriate to limit the environmental impact and construction cost resulting from demolition, removal of waste and reconstruction by utilising the existing substructure and beam-and-block floor. The planners loved the proposal and the planning application sailed through.

The demolition of the existing bungalow and erection of the two storey dwelling has enabled the floor space to be increased both at ground and first floor level to create a generous family dwelling. For the first floor construction, metal web 'eco-joists' were specified with lightweight timber stud walls to limit the load on the existing foundations.

White impregnated render, western red cedar timber cladding and blue-faced brick now provides a striking exterior under a new Spanish slate roof, with aluminium doors and windows. The Sun Paradise Bali60 2-Track sliding door system was chosen for the large corner opening in the open plan living space, due to its high-quality removable corner post and locking mechanism. Velfac aluminium framed windows were then installed throughout the north, east and west elevations of the property because of their reasonable cost, high thermal performance and uncluttered modern aesthetic. While the project appears contemporary, we in fact took inspiration for the cladding materials from the neighbouring properties — many of which feature white render and slate roofs, and a new build nearby has used timber cladding, so that's where that idea came from.

Emphasis was placed on creating a good connection with the south-facing garden at the front of the property, with accessible thresholds to the front door and patio. The existing ground floor was at an unusually elevated level so an arrangement was designed to allow a long sloping approach (less than 1:20 gradient) from the parking area to the front door, offering accessibility as well as providing a more grounded-looking home. The homeowners are over the moon with the result. **H**



Above: A Striking Home Sensitive to its Surroundings

The cladding materials on this project may look contemporary, but were carefully selected based on the existing properties in the local area. Spanish slate used for the roof covering and large feature chimney stack takes its cue from the slate roofs on surrounding houses, which also feature white render. The western red cedar cladding was inspired by a local timber-clad new build



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THE DESIGNER'S VIEW EXTENSION AND REMODEL

The Modern Chalet

A rundown house in Hampshire has been transformed into a modern family home by architect Lesley Hally, thanks to an extension and remodel



IMAGES: LA HALLY ARCHITECT; JOEL KNIGHT



LESLEY HALLY
Lesley Hally is Principal
Architect at the practice
LA Hally Architect (lahally.com)

HB&R: What condition was the existing property in, and what was the homeowners' brief to the practice?

Lesley Hally: The existing house was a typical 1930s single storey red-brick bungalow with PVCu windows, an inset porch with arched entrance, bay windows and a garage. It was traditional in style, low in profile and was very dark inside due to a deep footprint with windows only to the front and rear. There was no light in the centre of the house, and it didn't help that the circulation space was very poor, with almost a rabbit warren of rooms inside.

The homeowners phoned us for a chat and we had initial meetings where they gave us the design brief. The clients weren't keen on the façade and wanted a more modern look. The front of the house is north facing and protected by trees, which meant that the rooms in this area of the home were particularly dark. The clients' brief included bringing in plenty of natural light, opening the house up to the garden for that inside/outside feel, plenty of storage, a play ➤➤



Rear Façade

Using a combination of modern buildings materials, including white render, cedar cladding and grey engineering bricks for the chimney stack, the home's former red-brick, single storey appearance is a far cry from its new contemporary form



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THE DESIGNER'S VIEW EXTENSION AND REMODEL



Below: Open Plan Living

Tackling the rabbit warren of rooms, the practice have opened up the property to provide the client with an open plan kitchen/dining/living area, adding a small extension to house the dining area. Glazed bi-fold doors here open the rear to the garden with its terrace for entertaining

space for the children, and they wanted to add another floor to include a home cinema, master suite, extra bedroom and bathroom.

Were there any factors to bear in mind during the design process?

The streetscape featured a lot of bungalows so we had to be careful about adding another floor here. We developed a design that kept the façade similar to the existing but with a more modern look. Part of this approach was to keep the roof angles similar — even though we increased the ridge height by 1.5m to include the new first floor, we kept the same angles as the original roof so that there was no overbearing and it didn't impede on light reaching neighbouring properties. This resulted in a double-pitched roof to the rear.

By adding the new storey as well as a small dining room extension to the rear, the house has increased in size to give the clients the extra volume they were after, with 96m² upstairs and a further 21m² added to the ground floor.

Were there any issues with the planners?

We have a very good rapport with the local planners as they appreciate that we consider the streetscape in our projects. Originally they thought the design had too much massing so we met with them and showed them the 3D model we had created so they could see how the design would work. They asked us to break up the front elevation and so we introduced a cantilevered porch. We also demonstrated how the house is screened from the road by trees, so we could get away with a more modern façade. Some of these trees are protected by a Tree Preservation Order (TPO) but as we were 6m away from the root protection area, we didn't need to worry. ➡



THE DESIGNER'S VIEW EXTENSION AND REMODEL



How has the project enhanced the property and tackled the problems of space and light in the process?

Now when you walk into the house you get a view right through to the garden and out on to the outdoor terrace. The circulation space has been rationalised and you walk from the hallway into a modern open plan kitchen/dining/living area. When we were handling the roof operations, we decided to raise the ceiling height in the dining space, which gives a sense of drama to this area. On the ground floor there is now a gym, study and a guest wing. The family quarters are upstairs.

Bringing light into the house was important and we have used Velux windows in the roof space in order to welcome in light from above. The new roof also allowed us to introduce bespoke glazing, which reaches up to ridge height, and certain rooms on the first floor now benefit from full-height glazing. On the ground floor bi-fold doors allow plenty of daylight into the interiors. Horizontal windows introduce extra light, too. We were very conscious of window placement to maximise light, and solar control glazing was installed on the rear south-facing elevation to minimise overheating.

The house has gone from a traditional red-brick bungalow to a rendered building with cedar cladding, together with a timber porch that projects out, and the glazing has been replaced with double-glazed grey PVCu windows. New flat tiles add a sleek, modern look to the roof and we also designed a chimney stack in a grey engineering brick, which breaks up the rear façade, with glazed doors either side, enabling you to almost walk round the fireplace. Inside, an inset cassette fireplace provides a statement feature to the open plan interiors.

We were conscious of the height of the surrounding buildings and knew the house had to be sensitive to the character of the area, so size, scale and roofline were all taken into account. Fortunately there were other properties in the area with render so the house fits in.

Above: Rationalised Circulation Space

Solving the problem of poor circulation space, as well as lack of natural light through the centre of the footprint, the hallway now leads directly into the open plan kitchen, with views straight through the home out to the garden from the front door

There is plenty of technology built into the house. Was technology always a key part of the project?

One of the clients works as a designer and is very much into designing programs and so the house is filled with automated technology, which helps to make family life easier. We were tasked with putting in the wiring and then he designed the rest. With the letterbox, for example, he will get a notification on his phone when the postman puts something in it, or when it is emptied. If no one is at home he can also link to the letterbox and speak with the postman to leave parcels in the garage, and open and close the garage door remotely — it's very clever. The family also get notified when the alarm goes off, can play music all around the house, monitor security from phones and the system will even detect the weather outside to let them know which coat to put on that day!

How does the home meet the clients' requirements?

Design-wise, size-wise and lighting-wise the project answers the brief. The house allows the homeowners' technology to be incorporated and it ticks all their boxes. The end result is almost a modern take on a chalet bungalow, and it's great to see the family living in the house the way you hoped they would. We really tailored the building to the clients' needs and the whole family enjoy living there. **H**



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BUYING MATERIALS

Ovens: The Five-Minute Expert

If you have decided to opt for an oven as opposed to a range cooker, what are your options and what should be your main considerations? Natasha Brinsmead explains



Why Choose a Single Oven?

Although some single ovens are roomy enough to easily accommodate meals for most families, bear in mind that you still have just one oven to cook, bake, roast and grill in. Whilst this will not be a problem for some, it's worth remembering that you will not be able to cook different foods simultaneously at different temperatures — or to use the grill at the same time as the oven.

On the plus side, they are easily installed below worktops and take up much less space than a double oven in compact kitchens. They are also some £200+ cheaper than double ovens, depending on the model you opt for.

A popular option at present is to place runs of two or more single ovens together at eye level within a bank of floor-to-ceiling kitchen units.



1. Miele's Generation 6000 DG6200 PureLine Steam Oven is a 38 litre steam oven that features automatic programmes with preset options for different types of food. It costs £1,190

2. The Gorenje+ GCS773B Combi Steam Oven was modelled on a traditional wood-fired bread oven and is priced at £899 excl VAT

Oven or Range?

This really does come down to personal preference — there isn't a significant price difference. It might be easier to fit a range cooker into an existing kitchen but in most cases new ovens will be part of replacement kitchens.

A range cooker undoubtedly gives a professional feel to the kitchen, and the more traditional models out there suit kitchens of a similar style. They combine ovens and hobs in one unit.

Built-in ovens are a great option for those after a sleek and streamlined look, and allow you to have your oven at eye level, which is a big draw for many people. They also make it possible for the hob to be situated elsewhere in the kitchen — handy if you have an island unit you want to house your hob in.



The Benefits of Double Ovens

Opting for a double oven opens up more cooking options than having just one single oven. There are two types: built-in and built-under. The difference between the two tends to be their height. Built-in ovens are designed to be slotted into units at eye level and are around 90cm tall, whilst built-under models are only around 72cm high.

Because built-under models are limited on height, two ovens have to effectively be squeezed in to a size little higher than most single ovens, meaning that the main oven may be a little smaller than built-in models. There will usually be a grill in the top oven and sometimes one in the main oven too.

3. Caple's Sense C4360 electric built-under double oven costs from £844

4. Whirlpool's new 6th Sense Multi-function Induction Single Oven AKZM 8790/IX offers both super fast induction functions alongside conventional modes of cooking. It costs £1,000

5. Smeg's SF4140MC 60cm Linea Compact Combination Microwave Oven (left) costs from £999

What Are Steam Ovens?

Steam models are all the rage. Although models differ, they require water from somewhere in order to generate the steam. Most models do not require plumbing, instead containing a reservoir that holds the water used in the cooking process. The oven heats up the water and turns it into steam. The steam rises, passes over the food and cooks it. There is a valve in the oven which gradually lets air out to release pressure. Steam ovens can achieve incredibly high temperatures and cook food very quickly. Other, usually more expensive, models require a connection to the mains water and feature multiple steam jets to pump the hot steam out.

"Steam cooking has become increasingly important — and combination steam ovens are now the biggest growth area in terms of cooking," says Neil Pooley from Miele. "Steam combination cooking can be used when preparing a variety of dishes; from fish, rice and vegetables to roasts, desserts and sauces. It's the optimum cooking method for retaining your food's vitamins, minerals and nutrients as well as preserving taste and texture." On the downside, a steam oven will not give meats that golden brown look — you'll need to grill post-steam. **H**



USEFUL FEATURES... OR GIMMICKS?

SELF-CLEANING OVENS

Also known as pyrolytic ovens, these heat the oven to super hot temperatures in order to burn off any dirt and grime — and turn it into ash that can be wiped away easily.

INTEGRAL MICROWAVES

Some ovens come with integral microwaves which can defrost etc. — it cuts down on the need for appliances.

FOOD PROBES

Designed to replace the need for a thermometer, these measure the core temperature of food and let you know when it is ready — designing out the risk of food poisoning.

INTELLIGENT OVENS

These ovens can work out cooking times based on the type of food you are cooking, its weight and the results you are after — some can even be controlled from your mobile phone.

PROJECT NOTES

Project:
Contemporary
extension and
remodel

Location: London

Size: 92m²

House cost:
£419,000
(in 2010)

Build cost:
£250,000
(£2,717/m²)

Value: £1.6million

Exterior

The glazed extension was integral to the redesign, creating more living space and filling the open plan kitchen/living/dining area with natural light. The full-height glazed sliding doors are from Cantifix and lead out to the freshly landscaped garden by Sangwyn Landscapes

Urban Charm

Architect Daniel Rowland and his wife Nina have taken on their own dark basement flat in Notting Hill, adding an extension to offer contemporary, light-filled living



HOMES CONTEMPORARY EXTENSION



THE QUICK READ

➤ Daniel and Nina Rowland have transformed a dark, damp London flat into a modern, light-filled home thanks to a glazed extension and internal remodel

➤ In order to retain the Victorian charm of the property, the builders sliced the face off more than 500 bricks and used them internally as cladding over a waterproofing membrane — exposed brickwork now features throughout

➤ Due to the reconfigured layout and extension, the footprint has been increased by a third, with two new bedrooms

For architectural professional Daniel Rowland, director of Studio 1 Architects, attention to detail was essential when it came to designing his own home. But when he and his wife Nina, who runs her own design business, bought their basement flat in Notting Hill back in 2010, it was dark and damp, with only one bedroom and one bathroom.

“Everything needed to be changed,” explains Daniel, “but as soon as I saw it, I knew I could make it into something really special. I knew exactly what I wanted to do to it, which was helpful as I bought the property at auction, so needed to be able to move quickly.

“The neighbours had already built an extension to one side of the flat and there was an existing flank wall to the other side. After researching the area and the local conservation guidelines, I was certain that we would be able to get the necessary permission for the work. The planning office did voice some initial concerns, but with the help of some 3D visualisations, they gave us the go-ahead and work began in 2011,” says Daniel.





BEFORE



HOMES CONTEMPORARY EXTENSION



Dealing with Damp

Once work started on the flat, the team had to tackle the terrible damp problem, meaning that every room had to be tanked with a waterproofing membrane. Given that the renovations were so extensive, Daniel wanted to ensure that the property retained some of its original Victorian charm and character by having exposed brick walls. However, as leaving exposed brickwork was no longer an option given the damp issues, the couple decided to use brick slips.

The builders were therefore tasked with slicing the façade off more than 500 original Victorian bricks in the back garden and then applying them to the walls over the waterproof layer. Luckily it was time and effort well spent and the exposed brick walls now bring texture and depth into the flat.

Extending the Flat

In order to renovate the dark, damp flat into a bright, modern home, the layout needed a complete overhaul which included removing every internal wall in the property and adding a rear extension. “We worked closely with structural engineers, our builder and party wall surveyors to make sure everything was mapped out meticulously,” says Daniel. “With so much forward planning, we were able to remove all of the internal walls and rear walls without any issues.”

The project quickly became a labour of love for Daniel, who was working at his architecture practice as well as handling the project management of the works, in order to earn enough money to fund the build. “We could only afford to have two people working full-time when really we should have had four,” says Daniel. “After around six months, I made the decision to be on site permanently as I needed to get more hands-on — I simply couldn’t afford to employ more people.” ➡

Above and left: Kitchen

Removing the internal walls has made way for a new open plan kitchen/dining/living arrangement to the rear, breaking out on to the garden. Here, the concrete floor contrasts with the neutral colour palette of the interiors and flows out over a level threshold to similar paving, linking the interior spaces to the garden, which houses a cedar-clad studio. In the kitchen, Daniel and Nina designed the cabinets themselves and the units were then spray-painted in All White and London Clay paint by Farrow & Ball





HOMES CONTEMPORARY EXTENSION

Bright, Modern Living

Once the structural changes had been made, the couple took their time to consider the feel of the internal space. "We carefully chose a material and colour palette that would contrast with the sharp modern lines of the design, helping to give natural balance to the property," explains Daniel. "The exposed brick, natural wood and concrete floors all help to bring texture and warmth into the space."

Instead of the dark, pokey flat that once existed, the footprint has been increased from 60m² to 92m² due to the rear extension and has taken the flat from a one-bed, one-bath property to a three bedroom home with three bathrooms (two of which are en suites). The space is now flooded with natural light too thanks to several new skylights coupled with floor-to-ceiling glazed doors in the open plan kitchen/dining/living room.

"Throughout the build we stuck to the idea of creating a clean, healthy environment, which really became our mantra," says Daniel. "We wanted a flat that was comfortable to live in; we didn't want our home to feel like a sterile relic."

Daniel and Nina also became regular visitors to Kempton Park Market, often arriving at 6.30am to bag the best deals. "We got lots of our furniture from there, as well as local vintage fairs, as we found that the eclectic mix of the old and new sits beautifully in the flat."

Of the kitchen, Daniel says: "We didn't have the money to have our kitchen made by a professional cabinetmaker, but at the same time we also knew that we didn't want to compromise on the quality or design of the space. Therefore we came up with our own drawing which we then took to a timber yard. Once cut, the cabinets were spray-painted in All White and London Clay from Farrow & Ball and everything was then assembled on site. We also designed large built-in floor-to-ceiling cupboards, so overall we feel that we now have a very user-friendly space."

The kitchen table was another of Daniel's designs and the wood was handpicked for its irregular, knotty appearance. He again then created the drawings for a local steel fabricator, who welded the table and bench legs. By designing so much of the furniture specifically for their home, Daniel and Nina have managed to create lots of unique pieces of furniture and hidden storage throughout the flat, helping them to make the most of the space.



Top and far left: Open plan living

To provide extra storage, the kitchen cupboards flow into a large bench behind the table which offers an ideal place to hide things away. Modern comforts meet period charm in this space with underfloor heating from Nu-Heat keeping the concrete flooring warm, while the exposed brick wall clad with brick slips cut from salvaged Victorian originals adds character. The modular sofas and rug are from Habitat

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HOMES CONTEMPORARY EXTENSION



Once the inside of the apartment was finished, the couple turned their attention to the garden. “We wanted to make the most of the space that we had, so the team at Studio 1 Architects designed it and the team from Sangwyn Landscapes carried out the work. It’s an extension of the flat now and I love sitting in the living room with the doors open, looking out over the garden. It’s become our oasis in the middle of central London and is the perfect place to relax and entertain our friends. We also created a garden studio, which has been clad in horizontal cedar battens to add texture and interest outside,” says Daniel.

“Although converting the flat had its stresses and financial strains it was definitely worth it,” concludes Daniel of the finished result. “When our resources ran out, we preferred to wait as we didn’t want to compromise on our vision — even if that did mean going without a sink in the bathroom for a few months. We enjoyed doing the project and are now looking for another property so that we can start the process all over again.” 

Above: Master suite

New double-glazed sash windows from Leonservices reflect the period of the property in the master bedroom and the ornate bed and half-moon table were sourced from Kempton Park Market. One of the two new guest bedrooms doubles as a home office (left) and continues the theme of exposed brick, while the family bathroom (top left) has a more modern feel with sanitaryware from Bette and Duravit





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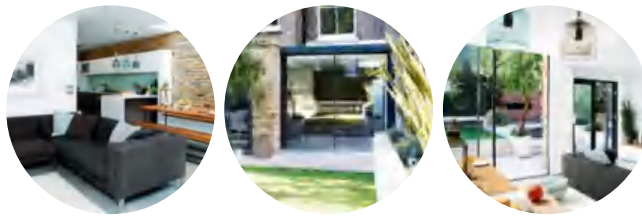
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HOMES CONTEMPORARY EXTENSION

The Project

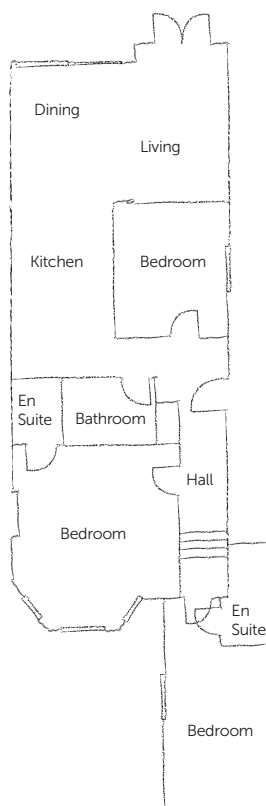


Daniel Rowland
Homeowner
and architect

HOMEOWNER'S VIEW

One of the main considerations while we were doing the renovations was to create a light-filled space that we could enjoy all the time. The sliding doors in the living room and extra skylight means that you can sit and look out at the garden or read a book without needing to turn the lights on. It's a great space that works well when we're just chilling out as well as when we're entertaining friends.

When doing a project like this, don't compromise on the quality or design of your project. Be creative not only with the design but also by being resourceful. With the kitchen for instance, rather than buying off-the-shelf, we designed it ourselves, sent the drawings to a timber yard and then sent the cut timber to a spray paint workshop who sprayed the panels in rich Farrow & Ball colours. By going down this route, we were able to create an entirely bespoke kitchen for a fraction of the cost. In the end it's often the attention to detail that sets a good home apart from a great one, so stay true to the integrity of the design.



SUPPLIERS

Architect Studio 1 Architects.....020 7101 0356
Skyframe sliding doors Cantifix.....020 8203 6203
Double-glazed sash windows Leonservices.....020 8351 1877
External paving London Stone.....08442 251 915
Garden landscaping Sangwyn Landscapes.....sangwyn.co.uk
Breakfast bar pendant lights Rothschild and Bickers.....
rothschildbickers.com
Bespoke interior furniture Form Room.....formroom.com
Underfloor heating Nu-Heat.....nu-heat.co.uk
Master bed Kempton Market, Kempton Park Racecourse.....
01932 230946
Kitchen appliances Neff.....neff.co.uk
Sofa Habitat.....habitat.co.uk
Toilets Duravit.....duravit.co.uk
Main bathroom bath Bette.....bette.de/en
Toilet flush plates Geberit.....geberit.co.uk
Kitchen cupboard paint Farrow & Ball.....farrow-ball.com
Living room storage paint Annie Sloane.....anniesloan.com

COSTS

Structural changes and damp-proofing	£68,000
Labour and materials	£54,000
Extension	£30,000
Landscaping	£25,000
Kitchen and bathrooms	£18,000
Electrics and plumbing	£14,000
Underfloor heating and concrete flooring	£14,000
New windows, doors and skylight	£13,000
Sliding patio doors	£7,000
Decoration	£7,000
Total	£250,000

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10 Modern Home Design Essentials

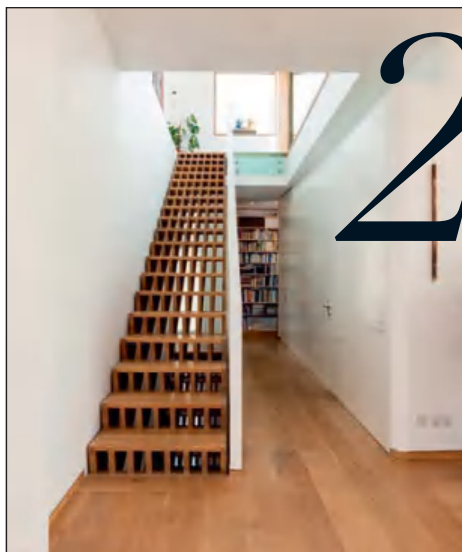
If you're planning on creating a home that is the epitome of 2015 style, you've come to the right place. Natasha Brinsmead explores the essentials to consider



THE ROOF OVERHANG

Overhanging eaves add a sense of charm to more traditional-style properties — those on this award-winning home by architect Neil Turner are the contemporary equivalent. Guaranteed to help turn a simple structure into something utterly striking, flat roofs that jut out provide an instant covered outdoor area, but also add protection to the house from the glare of the sun and shelter from the elements.

1



THE FEATURE STAIRCASE

Occupying such a prominent position in the open plan home, staircases are also often one of the first things you see when entering — capable of making or breaking the entire look. The most successful contemporary feature staircases tend to be made from a material used elsewhere in the interior scheme, be sleek yet solid, and are always in proportion. They should be well-lit and crisp in their design.

2

3 WARM, NOT CLINICAL

There seemed to be a time when it was assumed that to be contemporary, everything had to be white, see-through or shiny, leading to some very cold and clinical interior schemes. Happily, contemporary interiors are much warmer places these days — natural materials, wood-burners and lots of individual touches are key, as in this project by architect Dan Brill.



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EMBRACE DARK MATERIALS

4

Continuing the warm, homely feel now being embraced in contemporary homes, are dramatic dark finishes contrasted with white spaces elsewhere. Rich tones in timbers such as wenge, walnut and stained and smoked oak are all popular. Use them to clad walls, as flooring, for furniture and in kitchens as worksurfaces or the units themselves.



DESIGN MODERN ESSENTIALS

BUILT-IN SEATS

5

While open plan spaces look stunning and undoubtedly work well for most on a practical level, they can feel just a bit too open — lacking in intimacy. Creating little privacy pockets and snug seating areas around the space is a great way to ensure a cosy feel in the most open of layouts.



INTERNAL GLASS

Expanses of glazing are not just for the junction between inside and out. Glass used internally in the place of solid balustrades, floors, and ceilings, not to mention walls and doors, allows light to penetrate right to the centre of the home.



6

HIDDEN LIGHTS

7

Contemporary spaces are all about creating unexpected and surprising effects and your lighting scheme can lend itself perfectly for doing just that.

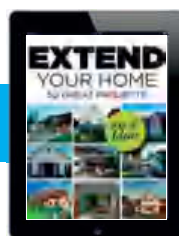
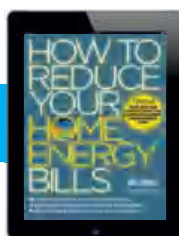
Whether you choose to conceal lights beneath furniture to create an ethereal glow, or fit them into recessed channels within floors and ceilings, some fascinating results can be expected. Highlight your favourite architectural features.

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8

RAW MATERIALS

Forget pristine and perfect finishes — the most stylish contemporary homes feature raw, earthy materials in as close to their natural, unfinished state as possible. Riven and matt finishes are ideal for natural materials, while more industrial products such as concrete, oriented strand board (OSB) and metals such as copper, lead and zinc should all be up there on your wishlist. Leaving services exposed adds to the look too.




9

EXTREME OPEN PLAN

If you are going to go contemporary then be brave about it. Make the most of exciting shapes and architectural forms by exposing them — dramatic double-height spaces guarantee wow.



TALL FIREPLACES

Ensure your fireplace is the focus of the room by creating floor-to-ceiling surrounds. This is particularly effective in open plan spaces, or in buildings that are naturally quite cavernous, such as barns and warehouses. Not only does the fireplace create a stunning centrepiece, but it will also act as a way of separating various zones within the layout. 

10

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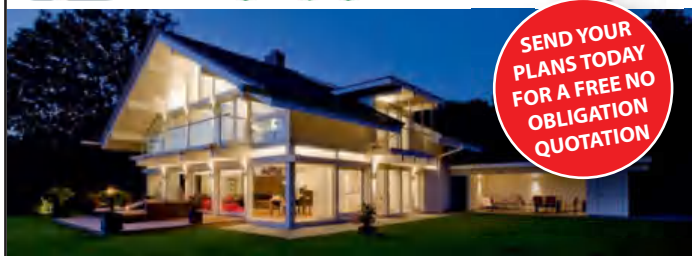
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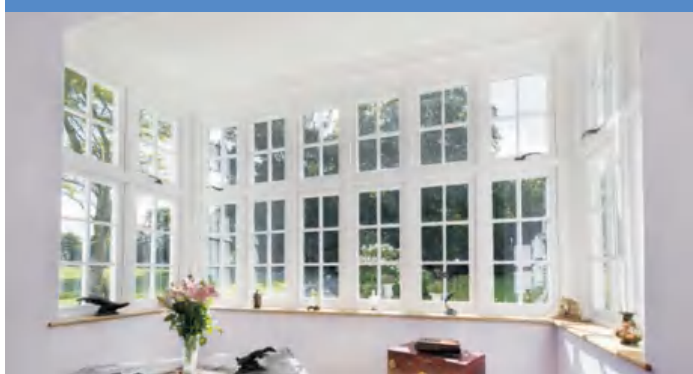
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Left: The various roof sections of Leeds Castle in Kent are finished in Traditional tiles

Below: This dormer cottage in South Warnborough, Hampshire has a steeply pitched roof covered in Shire tiles

BRAND WATCH

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Perfect if you're adding a new extension or re-roofing your whole property, the four products within the current Keymer range include Peg, Traditional, Shire and Goxhill — all of which are available in various shades of red and can be used to a minimum pitch of 40°.

Each Keymer tile is made by hand following traditional techniques at its new home at Wienerberger's Ewhurst factory in Surrey. Its open-house policy means that you can visit and see the tiles first hand and create a tile of your own before you make a purchase to ensure the finish is right for your home's style, and when you decide to buy, you'll receive a certificate of authenticity.

Artefacts from Keymer's celebrated past are also available to view at the factory's visitor centre, including a 16th-century ledger and two of the four clay griffons that guarded the corners of the sites Keymer worked on.

To view Keymer's full collection and to see project galleries, visit keymer.co.uk. See wienerberger.co.uk for extra information and follow @wienerbergeruk on Twitter for updates. 



Right: Shakespeares's Birthplace Trust in Stratford upon Avon, Warwickshire, is roofed in Peg tiles

Below: Traditional tiles on the roof of medieval Lord Leycester Hospital in Warwick



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Self Build Live is a series of free events for aspiring self builders to have '**Access All Areas**' to the construction of Potton's Passivhaus Self Build Show Home.



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SELF BUILD LIVE

Forming a complete step-by-step guide to building a home, we follow leading package company Potton as they start work on a brand new Passivhaus home



118 **Passivhaus:** A Design and Build Guide

Potton's Self-build Director Dr Paul Newman explains the principles behind designing and constructing a Passivhaus home

121 **The Importance** of Soil Surveys

Why undertaking this survey before going on site could save thousands

122 **A Step-by-Step to** Building the Substructure

Getting out of the ground is one of the most important stages during a self-build project. Project Manager Brent Ackerman explains how it's done and shares his words of wisdom

In a UK industry first, self-build specialist Potton is giving aspiring self-builders an opportunity to watch, stage-by-stage, the construction of its fifth and most contemporary showhome.

Self Build Live is a series of events – held at Potton's Self Build Show Centre in St Neots, Cambridgeshire – designed to offer potential self-builders an 'access all areas' insight into the construction of a fully certified Passivhaus and learn first-hand how to build their own home – the highlights of which are showcased over the following pages.

Potton, together with its build partners, will host 16 Self Build Live events at key stages of the build – from laying the slab, installing insulation and skimming the walls to fitting the bathrooms, interior design and decoration. Each event will provide essential self-build information and an unprecedented insight into building a Potton home.

For course dates, videos of the build and more information, visit selfbuildlive.com



BUILDING A PASSIVHAUS

As they embark on their first Passivhaus certified build, Potton share their insight into designing and constructing a home to this highly efficient build standard



DR PAUL NEWMAN
Self-build Director
Dr Paul Newman has worked within timber-based construction industries for over 18 years

Everyone seems to want to build a Passivhaus at the moment and, amid the hype, it pays to take a step back and examine what it actually means. The standard originated in Germany in the 1990s and is based on the idea that a home can be heated using warmed fresh air. Because air can only hold a small amount of heat, the house must be designed so as to need only a small amount of heating and constructed thoughtfully and carefully. This amount of heat turns out to be 15kWh/m²/year — about three times more efficient than current UK Building Regulations, and still more than twice as good as planned UK regulations for 2016.

To achieve this figure, Passivhaus homes must be ventilated using a mechanical system that pre-heats ventilation air by recovering the heat from stale air as it leaves the building. While this type of system is still relatively uncommon in the UK, it is becoming much more the norm for highly insulated buildings. Older dwellings frequently have poorly fitting doors and windows and open joints between construction elements and are consequently draughty. Essentially, many of us are used to having fresh air, provided via draughts as the result of poor construction, without having to open windows or to have a mechanical ventilation system. With a Passivhaus the mechanical ventilation system is essential for the winter period, as the buildings are designed to be very airtight to prevent heat escaping in an uncontrolled manner through those gaps and cracks. The ventilation system runs all

the time, even in the summer, at a low level, so the fans don't make any noise, and the air is kept fresh through constant changes. This all means that heating bills are kept very low and Passivhaus homes are cheap to live in.

The key features of a Passivhaus are:

- Very high levels of insulation
- Extremely high-performance windows with insulated frames
- An airtight building fabric
- 'Thermal bridge-free' construction
- A mechanical ventilation system with highly efficient heat recovery
- Accurate design using the Passive House Planning Package (PHPP)

A big effort is needed by the constructor to make the home very highly insulated and airtight and so far there are few constructors and manufacturers in the UK who are skilled at doing it. However, as more of these projects are constructed, the skill levels in the industry will grow to meet the demand and the workforce will gradually become used to the level of care and workmanship required. Some of the costs of the increase in construction quality ought to be offset by the omission of a traditional heating system. Many homeowners, however, are nervous about doing this — we're used to seeing radiators and become concerned when they are not there, even if they are not needed.

Because of the long payback duration, most people need reasons beyond simple energy efficiency before they can be convinced that building a Passivhaus is a good idea. Well, here's a few:

- Low running costs to help prevent future fuel poverty
- Easy to live in with simple control systems
- Thermally comfortable, with no draughts and an even temperature distribution
- Good indoor air quality provided by the mechanical ventilation system
- Excellent acoustic performance provided by a combination of very well insulated walls, airtightness and triple-glazed windows

For me, the biggest benefit of Passivhaus buildings is perhaps the least obvious — the comfortable internal environment with an even internal heat distribution.

THE DESIGN

The stereotypical Passivhaus is a simple box, aimed at containing the most space as efficiently as possible and maximising windows where they will get winter sunshine. This can cause the designer some difficulties; the plot may have nice views to the north, or may have a lot of trees or hedges to the south that cut out the sunlight, for instance. As designers become more familiar with the standard, they will develop the skills to be more expansive with the design and take advantage of the benefits of different plots. The designs they create will also be constructed for a reasonable cost uplift.

With very highly energy-efficient homes there is a danger of overheating in the summer if there are large areas of unprotected glazing to the south and west. Good design can overcome this by ensuring that such windows have appropriate shading — including overhangs or shutters, which are a standard feature of southern European houses. The Passivhaus Planning Package (PHPP) — an essential tool used when designing a Passivhaus — is a monster Excel spreadsheet and checks that the property being designed will not overheat in service. In addition, the development of automated blinds that can be set to close if the internal temperature rises beyond a set point will also aid. It is likely that we will soon be able to respond to changes in the temperature of our homes by using our smartphones.

Potton have previously designed all of our showhomes using in-house designers. This time we took the brave decision to work with an external practice, HTA Design. Apart from being great designers, HTA is a practice we have worked with on previous low-energy housing developments. HTA have a deep and genuine interest in sustainability and energy efficiency.

The Architecture and Sustainable Futures team at HTA worked collaboratively with our technical team to design a house that is ambitious in form and avoids the stereotypical Passivhaus perception of a simple box. Derived from a desire to flood the interior with natural daylight, a series of



design moves creatively breaks down 'the Passivhaus box', employing large openings and a distinctive butterfly roof, while simultaneously challenging and satisfying the requirements of the Passivhaus Planning Package. There are certainly easier ways to design a Passivhaus, but we're building a showhome to see just how far we can push the performance standard.

A top-lit enclosed 'courtyard' sits at the heart of the home, filling the deep plan with natural daylight. Flexible in arrangement, the series of interconnected spaces is designed to be adaptable to almost any occasion or lifestyle. The ground floor can be imagined as a layer of nine squares or boxes; in this house, the rear-most six are almost entirely open plan in arrangement. (We believe that the 'nine square' design will provide future customers with almost innumerable great ways that they can tailor the

design of their own houses but still benefit from the care and thoughtfulness of this Passivhaus design.) This large south-facing space is lined with a heavyweight flooring and 8m of full-height glazing that opens out to the garden under the overhang of the roof, blurring the line between interior and exterior. The courtyard space at the centre is not only intended to be flexible in use but also the unofficial hub of the home. We are currently developing the interior design with our partners at Dulux Design Service.

The south-facing opening has been maximised to benefit from solar gains, which combined with other Passivhaus principles,

A Home for the 21st Century

Defying perceptions of Passivhaus builds being box-like in form, Potton's latest show home – due to be fully certified – will cut a dynamic shape when built. Designed by HTA Design, the Potton build features a butterfly roof and has been exactly designed to welcome in natural light and solar gain without the interiors overheating

helps to reduce the energy consumption of the house to 15kWh/m²/yr for heating. The roof overhang protects this glazing from excessive solar gains and overheating of the interior during the summer, while maximising solar gain during the winter months.

THE BUILD

The new showhome will be constructed using the Kingspan TEK® Building System (structural insulated panels) and, with additional external insulation will have a 'thermal bridge-free' construction. The windows, which will come from one of our cur- ➡

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rent suppliers Kloeber, are triple glazed and tightly sealed into the envelope to achieve reduced heat losses and a comfortable surface temperature.

The house is conceived as a brick-clad box, which reveals spaced timber cladding at the points at which it is 'carved' away. At the entrance, bricks sit above the cladding as it wraps around the corner and seamlessly continues inside to the main living space, guiding visitors into the house. Most Passivhaus builds use lightweight claddings carried by the structure of the building; insulated render is common. Using bricks has added a further level of complication, due to the need to provide a separate foundation for them (read more on page 122) and we have challenged ourselves further by selecting a longer, narrow-format brick from Wienerberger, with narrow mortar joints, for a contemporary aesthetic.

PROGRESS ON SITE

Work on site is well underway and has so far progressed smoothly with our subcontract trades completely embracing the need to produce work of the highest quality. The ground floor of the house is constructed of a 225mm-thick cast concrete raft sitting on top of a 250mm layer of Kingspan Styrozone insulation. It's a difficult concept for some people to believe, but all of the loads applied by the building structure, its occupants and contents get transferred into the concrete and ultimately into the ground by thick layers of 'load-bearing' polystyrene. The insulation sits on a levelling layer of sand with hardcore underneath.

Prior to beginning any work on site we commissioned a soil survey to confirm the load-bearing capacity of the soil; thankfully it was very good. There is a separate and completely disconnected foundation to carry the vertical load of the brickwork. A separate 100mm-thick layer of insulation wraps up the sides of the raft and will link into the additional layer of insulation applied outside of the Kingspan TEK® Building System. These layers of insulation are key parts in providing the well-insulated, thermal bridge-free building envelope. The foundation and ground floor structure is completed, as in almost all timber-based buildings, with a course of thermally efficient aircrete blocks to which the sole plate of the structure will be fixed. 



Undertaking a soil survey before starting on site could save you thousands in the long run, says Project Manager for Potton's Passivhaus build, Brent Ackerman



BRENT ACKERMAN
Brent Ackerman is a regular presenter of the Self Build Academy and Project Manager for Potton's Passivhaus build

Before buying a plot, a soil investigation and survey is a good idea to assess the type of foundation likely to be necessary for your new build. A soil survey can provide you with detailed insight into the characteristics of the ground on your plot, and determine the quality of the earth and highlight any anomalies in the ground conditions which you may need to consider before progressing to groundworks stage.

When I talk to self-builders about budgeting, one of the biggest 'grey areas' is the foundations. I usually advise that a ground investigation should be carried out which includes a soil survey. From the results of this survey a foundation can be engineer-designed that is the most economical for the site.

Is a survey really necessary?

Is it necessary to carry out a soil survey — why don't you just start digging, you may ask. While it isn't absolutely necessary, when you are planning your budget the last thing you want is nasty surprises, and there can be many lurking beneath the soil. For an outlay of £1,000–£2,000 it can be money well spent to avoid the unforeseen when on site.

If there are problems with the site these may come to light when a survey is conducted. Technical issues such as poor soil composition or poor drainage are all things that would add costs to your build budget and you should be aware of these upfront.


Ideally this sort of information should be available before you purchase the plot, but sadly this isn't often the case. So, unless you want to allow a lot more in your contingency you should get a survey done as soon as possible. It may just save you a lot of money in the long run.

How is the survey undertaken?

A soil survey should be carried out by a suitably qualified consultant or company. Typically both the top soil and subsoil are investigated, which determines soil material, pH levels, particle size and potential contamination.

Typically some trial holes are dug in the presence of the engineer so that they can take photos and notes of what they see, and also take soil samples for analysis. Holes (which can be up to 3m deep) are then filled in following the survey. Another way is to take some samples using an auger rig and there are plenty of companies around who can do that for you.

How much does it cost?

The cost of a soil investigation depends on the size of the project and whether there are planning conditions to be satisfied. A desktop study of a site could cost around £600 plus VAT. A basic soil investigation costs around £1,500 plus VAT, scaling up from there depending on the size and complexity of the project. 

THE SUBSTRUCTURE: A STEP-BY-STEP GUIDE

The foundations are a critical part of a self-build project — Project Manager Brent Ackerman shares his words of wisdom from Potton's latest Passivhaus

1 Digging the foundation trench

The Passivhaus floor slab is very different to 'standard' foundation details. In the case of the showhome, it's effectively a ground-bearing reinforced raft sitting on 250mm of Kingspan Styrozone, which is also carried up the side of the concrete to eliminate cold bridging around the perimeter. This means that an independent foundation is required to support the facing brickwork.

Once the site has been prepared, the first step on this site is to excavate the foundation trench that supports the external brickwork. It is incredibly important that the position and depth of the foundation trench is exact, as the top of the concrete sets the starting position for the brickwork. The foundation is therefore set out by the setting out engineer with physical dimensions checked against boundary positions, for instance, just to make sure that there are no errors.

Once the foundation is excavated, the bottom of the dig is inspected by both the structural engineer and the building control inspector to make sure that it is of the required bearing capacity.

2 The concrete pour

The pouring of concrete foundations tends to be relatively straightforward, provided the excavation is in the right position and there's good access for the concrete mixer to tip the concrete into the trench.

Before starting to pour the concrete, it's important to make sure the 'TOC' (top of concrete) level can be accurately established. We decided to do this with a laser level but installing level pins is another good alternative.

Once the concrete has been poured and spread into place, a vibrating poker is used to help compact the concrete and remove any air that may be present within the mix. Once poured and levelled, the surface is finished with a tamp to provide a good base for the brickwork to be built off.

3 Building the corner blockwork

Once the concrete has cured sufficiently, the foundation blockwork is started, with the corners built first. The corner position of the walls are firstly marked out to check that they correctly sit on the foundation. It is much more efficient to build the corners first as this enables the straight walling to be 'run in' quickly using lines to set the position and height of the brickwork.

4 Building the blockwork walls

Once the corner blockwork has been constructed and checked for position and height, the straight block infills are then 'run in' using a line at each course. At the location of service entries, openings are created with concrete lintels supporting the blocks above. It's important that services such as drainage have sufficient clearance to allow for settlement without displacing drains.

An important feature of building a Passivhaus home is maintaining optimum airtightness. This requires attention to detail at every stage — the foundation blockwork is no exception. The mortar in the substructure is therefore pointed to make sure that every bed and perp is full and that air cannot leak through the construction.

Once the blockwork has been constructed a final dimensional check is carried out by measuring the diagonal lengths between each corner. If the diagonals measure the same then the blockwork can be considered to be square. Also, check the level of the blockwork to the entire perimeter of the substructures to make sure that it is level and within tolerance. It's much easier and cheaper to correct any errors at this stage than once the raft or the beam and block has been installed.

5 Sand blinding

Once the substructure blockwork has been constructed and the services have been installed and inspected, the ground

below the raft is then prepared and levelled to receive the compacted stone and sand blinding. The purpose of the sand blinding is to provide a level surface to support the insulation and this must also be compacted to prevent any later settlement.

6 Laying the insulation

Kingspan Styrozone has been specified here due to its excellent thermal properties and its load carrying capabilities. The insulation board is placed in three layers with tight, staggered joints to help spread the imposed load from the raft and reduce any air leakage and thermal bridging potential. The Styrozone is also installed up the side of the concrete to eliminate cold bridging around the perimeter.

7 Installing the steel reinforcing mesh

Once the Styrozone insulation has been laid, the preparation works for the concrete raft can be done. Firstly, a DPM (damp-proof membrane) is laid over the insulation. This membrane prevents damp rising into the concrete, as well as preventing grout loss during the pour and air leakage once the concrete has cured (concrete will leak air). Service penetrations through the membrane are also sealed using proprietary sealing tapes, again with the focus of preventing air leakage.

The steel mesh reinforcing provides the skeleton of the raft foundation and affords the structural strength required by the raft. The correct installation is therefore paramount and it's a good idea to ask the structural engineer as well as the building control inspector to inspect the installation prior to the pouring of the concrete.

8 Tamping the concrete

Once checked, the concrete raft can then be poured. Access for concrete mixers is difficult on this site and therefore a concrete pump is used to help distribute and



1



2



3



4



5



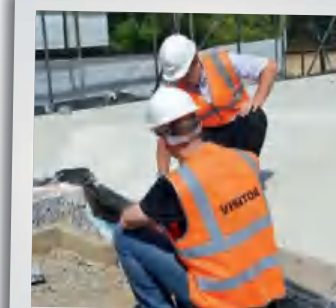
6



7



8



9

place the concrete.

The concrete is once again compacted using a vibrating poker and vibrating tamp which removes the air within the mix and ensures that the concrete spreads around the steel reinforcing properly.

The concrete slab can be finished in different ways, from a simple tamp finish to a power floated, polished finish. The Passivhaus will have a screed and therefore we have opted to leave the concrete slab with a simple tamp finish, taking care to ensure

that service penetrations are properly filled around. (It's a good idea to seal the top of any services with tape to prevent concrete spilling down pipes.)

9 The finished slab

Depending upon the time of year, the curing (drying out) of the raft may need to be controlled. In winter, frost could freeze the concrete damaging the surface, adversely affecting the concrete strength. In summer and in times of high winds, the concrete could

dry out too quickly causing excessive shrinkage and cracking of the surface. Care must therefore be taken to protect the concrete and allow adequate curing before any following trades start to work on the surface.

Once the slab has sufficiently cured, the protection can be removed along with any temporary formwork. In this case, we've used blockwork to provide extra support to the turned-up insulation. (This was removed and will be replaced with brickwork at a later date.) **H**

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Is Your Home Covered?

If you're planning a renovation or extension project, making sure you have the right type of insurance is critical for your peace of mind

Did you know that your normal house insurance doesn't cover your property if you are altering it through an extension, renovation or conversion, including the loft and garage?

Many homeowners assume that their home insurance policy will continue to provide cover if they decide to carry out a major home-improvement project, but often this isn't the case as a lot of policies have an exclusion — meaning you aren't protected if you alter the structure of your building.

Adding an extension can be the biggest financial investment you'll make after purchasing your home, so why risk it all by not having the right insurance in place? Ask yourself if you could afford to rebuild your home and extension out of your own pocket if something went wrong. If the answer is no, then providers such as Build-Zone can help to ensure your site is covered for the duration of the build, and afterwards.

The company's latest Home Improvement Package provides cover on a property while being improved or extended, even if you aren't initially living there, plus it covers all the new works and materials, right up to completion of the project.

As part of the package, tools and equipment left on site are also protected, while employers' and public liability insurance means that anyone working on site is covered if they suffer an injury, or if damage is caused to a third party or their property. What's more, should anything happen to a worker or family member while on



site during the course of the construction, the cost of defending or pursuing a claim is covered, plus there is also an additional contract on offer for any tradespeople or contractors that you employ to legally protect yourself from possible negligence.

Complete with options to have approved inspectors carry out the building control and technical audits throughout the build, which can save you time and money, Build-Zone's comprehensive protection options also include the chance to take out a 10-year structural warranty to protect you against defects in design, materials and workmanship. For more information, call 0345 230 9873 or visit build-zone.com. **H**



Building & Renovating

This section: All the practical expert advice you need to get your project underway



Advice

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Advice

The Art of Repointing P.147



Advice

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How to Choose a Package Supplier

Using a single company to manage the design and build of your new home is highly attractive, says Jason Orme, but makes the choice of supplier all the more critical

Package suppliers, or turnkey companies, design and build companies or even occasionally custom build companies, whatever you want to call them, typically offer pretty much the same thing — a hands-off self-build. The company will design the house, source all the materials, arrange the labour and get the thing done. All you have to do is pick and choose what you want, and pay for it.

It sounds all too easy, and it comes at two significant costs. The first of which, of course, is the price itself — price in building terms is all about risk. By transferring the risk of construction to another company, they are going to factor all the associated things that can go wrong — from materials prices rocketing to contractors providing poor work to the design in no way realistically reflecting the budget. People building a home through a package company would expect to pay extra to reflect this fact than if they'd organised it themselves.

The second cost of using a package company is an addendum to the first, on risk. Because, regardless of who you use, you can't completely eliminate risk from a building project. You can't eliminate it from life generally — things happen — and so the idea of this being a completely safe way of building a house is a myth. Companies don't always offer the service they promised, and sometimes they go bust. You are mitigating that risk by having a single design and build contract with just one company (as opposed to, say, 20 individual contractors and materials suppliers) because if something goes wrong for them, it's not your problem. But if something goes wrong *with* them, then it most definitely is. Which makes the choice of package company critical. So, how do you choose?



HANSE HAUS X 2



HOW THE PACKAGE ROUTE WORKS

Different package suppliers offer different processes, but the following is typical:

PLOT ANALYSIS

Your package supplier might have a list of available plots; they may help you assess sites and guide you through the purchase.

FEASIBILITY STUDY

A consultation session to go through your broad brief, your intentions, and budget to assess if you are able to proceed.

DESIGN CONSULTATION

You may work with one of the company's designers (either in-house or freelance) to create a design to your brief and budget.

PLANNING & BUILDING REGS APPROVALS

The package company will administer your relevant Building Regulations, warranties, etc. as required.

OFF-SITE MANUFACTURE

After committing to the project you will

order your 'kit' frame and it will be manufactured by the supplier off site.

GROUNDWORKS

Most package suppliers do not include groundworks in their contracts, but may be able to arrange for an approved contractor to undertake the work for you.

DELIVERY AND ERECTION

The 'kit' is delivered to site and erected, ready for you to move in.

STRUCTURAL SYSTEM

Package suppliers tend to have their own unique walling and roofing systems. The key is to make sure you're comparing like for like

If you like the look of the highly efficient timber frame systems, package companies are the solution for you. In many ways, the package approach is essential to the delivery of highly airtight, energy-efficient wall, floor and roof systems in a way that leaving a build to a series of builders on site isn't. Most of the UK and continental suppliers offer closed panel timber frame systems which closely resemble structural insulated panels (SIPs), and many companies offer a range of slightly different options — e.g. 'standard', 'eco', 'Passivhaus' (at different price points). Typical U values for these walling systems are in the 0.11-0.18W/m² range — easily meeting and surpassing standard Building Regulations.

What's interesting too is that these walling systems include parts of the build that might not otherwise have been considered part of the external wall. Weber-Haus's ÖvoNatur Therm (their most thermally efficient option) includes not only the exterior render but also the internal plasterboard.

The key is to ensure that you're comparing like for like across suppliers when looking at U values — but also at wall



OAKWRIGHTS, HANSE HAUS, BAURITZ



thicknesses. Traditionally, timber frame construction has been seen as the best option to achieve maximum efficiency on the thinnest build-up, allowing less space to be lost to the wall. However, Weber-Haus's ÖvoNatur Therm allows for two skins – the regular 165mm timber frame in addition to an extra 160mm thickness of additional insulation. The total thickness including render and plasterboard is almost 400mm.

This being self-build, there is a choice of walling system. Design & Materials have long stood alone as offering a comprehensive package service – as their name suggests, design and materials – but in blockwork, rather than timber. They have a wall system that offers U values that beat $0.17W/m^2$. Similarly, insulated concrete formwork (ICF) suppliers often offer a service that provides airtight and efficient wall systems.

However, if you're making your choice of build route and package supplier on build system alone, then you're probably missing a trick. There are distinct differences in terms of performance and construction system but they pale somewhat when compared to the fact that the end result is usually going to be well in excess of Building Regulations standards. Wall thicknesses do differ, as does the ability to achieve good airtightness levels, but the structural system shouldn't be your main differential.

ADVICE PACKAGE SUPPLIERS

COST

There's a surprisingly large variation in guide prices between the suppliers

Homebuilding & Renovating's analysis of build costs offered by package companies reveals that the costs offered by different suppliers varies just as much as that by builders. In many ways the only truism is that you've got as near to a guarantee as you're going to get that the quoted price will be the finished price you'll pay – after all, marrying the design and build elements is a brilliant way to ensure cost certainty.

It's a wide bracket, but build costs range from $£1,000/m^2$ to at least $£2,500/m^2$. In most cases, expect to pay around $£1,200-£2,000/m^2$ through the package suppliers that control the whole process (i.e. provide their own labour and materials rather than just materials), although at the top end, Baufritz informs prospective clients that they should budget $£2,500/m^2$ – this is, they claim, due to the highest quality design and construction system. Potton base their prices on variations from $£1,200/m^2$. Hanse Haus tend to give clients looking for general steers on costs figures in the range of $£1,400/m^2$. Oakwrights, the oak frame package supplier, are 'reassur-



HANSE HAUS X2

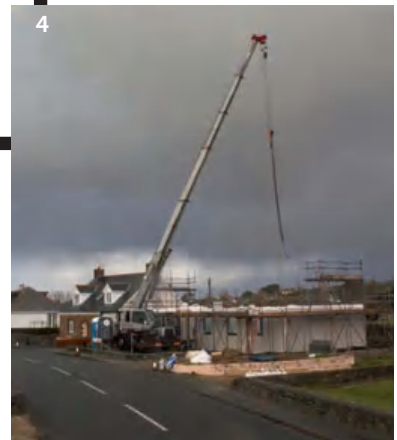
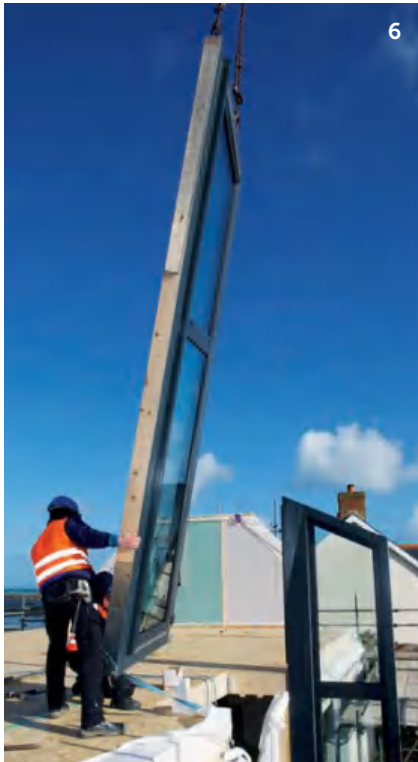
ingly expensive' according to owner and founder Tim Crump (most Oakwrights homes tend to cost at least $£1,800/m^2$).

One (happy) thing to note: The European-based package suppliers tend to base their price in euros and with the recent favourable shifts between the pound and the euro, the cost of using them has decreased quite significantly.



A PACKAGE BUILD ON SITE

We follow a Hanse Haus build on site in Guernsey — the process, from first panel being off loaded to roof timbers being installed on to weathertight shell, took just three days



Three-Day Build
Prefabricated closed timber frame panels are winched into position, with services already in place (7)

ADVICE PACKAGE SUPPLIERS

A Full Service

From design to manufacture to erection to finish, a package supplier offers a complete solution



BAUFRITZ

SERVICE

One supplier's 'package' is different to that offered by another

So-called 'package' companies are remarkably relaxed about the definition of what the package they provide actually is. In short, most companies offer you a range of involvement levels depending on your own preferences. Potton, for instance, offer five main build route options to their customers after the design and planning stage — which itself includes pretty much every option you could think of, from the conventional package route of using an in-house Potton designer, to bringing your own existing plans to Potton for them to build from. In this sense Potton are effectively a materials package supplier with design and project management bolt-ons. The actual core provision includes the supply and erection of the timber frame superstructure with pre-insulated external panels, roof trusses, first and second fix carpentry (supply only, and including such items as staircase, skirting and architrave, doors, etc.). It clearly excludes footings and roof coverings,



HANSE HAUS



HANSE HAUS

cladding, electrics, plumbing and so on — although Potton will happily arrange these for you if you wish.

This 'frame plus extras' model is quite dominant among the UK suppliers who often get called package suppliers — a far more accurate description would be timber frame suppliers. Oakworth Homes, for instance, bill themselves primarily as timber frame suppliers who, if the customer really wishes, will offer management and even design services.

The model offered by Scandia-Hus, one of the UK's best-known package suppliers, confirms that for the most part, UK package suppliers tend

to stop at joinery. They offer a range of transparently priced building 'sets' which include a design service (based on standard design types) for which the price varies depending on the build route chosen. Flexibility is great, but package building in the continental sense this isn't.

Which is exactly the service offered by the likes of Baufritz and Hanse Haus, who offer an initial design consultation, followed by a trip to their European sampling centres to make final decisions, then everything is fixed down ready for off-site manufacture, delivery and construction on site — a true 'package' if ever there was one.



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Unique Design

A package supplier can now be a route to a one-off contemporary, as these homes by Potton (top), Baufritz (below) and Hanse Haus (bottom) go to show

DESIGN

The design service offered by package companies is desperately trying to move away from the 'brochure' approach of a decade ago

Elsewhere in this magazine we talk about the rise of 'contextualism' in house design — namely the idea that each new house should be a unique reaction to its specific environment. Which, traditionally, would have been bad news for the package companies selling strongly on a design style. Potton, for example, were known for many years for their distinct range of traditional homes (the Milchester rectory style, the cottage-inspired Caxton, the strong gables of the Gransden, and so on). It's worth noting as a slight adjunct here that of the 6,000 self-built homes that Potton have built since the late 1980s, there have been some 2,200 unique designs produced — which rather puts paid to the theory that these package suppliers ever had a 'stock' house. But they were largely variations on a few common themes, and now Potton is turning much more towards bespoke, individual design to meet customer needs. Steven Harding, spokesperson for German timber frame package supplier Baufritz, meanwhile says that it's their individual, architect-led approach to design that helps them to achieve planning for homes in sensitive locations such as Conservation Areas.

So how do you pick between package companies? The choice comes down to the quality of the designers and their willingness to provide the type of services that you might expect from an independent architect (in many cases they are independent designers anyway). So try to find out as much as possible and ask questions. Who will handle your design, for instance? Can you meet them? Can you see previous examples of their work?

Many package suppliers tend to bundle the costs of the design service into the overall package price. That's good for you, in most respects, but be careful to ensure that it doesn't falsely reduce the importance of design to the wider scheme. Most experts agree you should be spending between 7-12 per cent of your build costs on design to give it the time and consideration (and expertise) it needs. Be wary of companies who put your design through a plans farm or who seem to employ just a few junior in-house staff to be tasked with the mission of creating your perfect home.





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HANSE HAUS

TURNKEY: A CASE STUDY

Here's how a genuine package approach works

Hanse Haus is one of best-known German-based companies offering a genuine continental-style turnkey approach in the UK. They build around 25 houses each year in the UK and they are unashamed in wanting their customers to use them as a full package supplier — from design through to handover. According to their spokesperson, Josh Stanbury: "We supply and build everything apart from the groundworks and the kitchen."

Once the self-builder has been through the design stage (handled by a UK-based house designer) and signed up, they fly out to Hanse Haus's base in Germany and spend "a very intense" two or three days at the sample centre making all the decisions — from windows to internal doors to socket type and position. The price is then adjusted (Hanse have a standard specification with certain choices being premium) with any off-piste choices accounted for. Josh says: "People can have whatever they want — the sample centre is very comprehensive and German fittings are of a higher basic standard than those in the UK, but if a self-builder wants something they've seen in an Italian magazine, then we make it happen."

Once signed and agreed (at which stage a portion of the total build price is deposited in a client account) the house is manufactured in Germany (usually over a two to four month period) during which time the groundworkers prepare things. "Then," says Josh, "the team of four or five builders come over from Germany, with the pre-built panels (which include plumbing and are even fitted with the doors) and the house is built — it's usually watertight in three days and ready to move in to in 12 weeks." **H**

ADVICE PACKAGE SUPPLIERS

PACKAGE SUPPLIER GUIDE

26 of the best package companies to check out

Potton

Bespoke design service; usually build in SIPs
potton.co.uk

manufacturers

scotframe.co.uk

frame package supplier

schwoererhaus.de

Hanse Haus

Closed panel timber frame package suppliers
hanse-haus.co.uk

Oakwrights

Bespoke oak frame homes
oakwrights.co.uk

Dan-Wood

Customised turnkey timber frame homes manufactured in Poland
dan-wood.co.uk

Baufritz

Closed panel timber frame package; uses natural, healthy materials
baufritz.co.uk

Oakworth Homes

Timber frame home manufacturer
oakworthhomes.co.uk

Flight Timber

Hybrid SIPs timber frame supplier offering design and build packages
flighttimber.co.uk

Westwind Oak

Bespoke oak frames; design and build service
westwindoak.com

Meisterstück-HAUS

Super-airtight German package supplier
meisterstueck.de

Rob Roy Homes

Manufacture bespoke timber frame kits
robroyhomes.co.uk

Welsh Oak Frame

Bespoke oak frames with subsidised design (not a full package)
welshoakframe.com

Fairgrove Homes

Package build supplier now offering a custom build service
fairgrove.co.uk

McGoldrick

Developments Supply timber frame kits
mcgoldrickdevelopment-slttd.co.uk

Border Oak

50 years experience in post and beam construction. Bespoke design service; usually build in SIPs and oak frame
borderoak.com

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Carpenter Oak

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carpenteroak.com

Lakeland Timber Frame

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lakelandtimberframe.co.uk

Fleming Homes

They offer bespoke timber frame kit homes from supply-only to full turnkey
fleminghomes.co.uk

Taylor Lane

Timber frame package suppliers
taylor-lane.co.uk

Scandia-Hus

Swedish timber frame supplier
scandia-hus.co.uk

Feeling Homes

Full service design and build package from £1,200/m²
feelinghomes.com

FjordHus

Supplies and builds Scandinavian-style timber frame homes
fjordhus.com

English Brothers

Bespoke timber frames
englishbrothers.co.uk

Scotframe

Timber frame home

SchwörerHaus

German-based timber

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BUILD COSTS

How Much to Tile My Roof?

Whether you opt for slate or tile, your roof covering budget will vary as your choice will have a big impact on labour costs too, says David Snell

The choice of roof covering can have a significant impact on the eventual look of the home. And yet, in the initial stages, much more attention is lavished on the layout and the external cladding of the walls. However, it is the roof that makes an enclosure into a home and the choices tend to reflect the region in which the home is built.

Of course, there are many forms of roof covering, from the traditional thatch to the more contemporary sheet roofing; not to mention green roofing, which is taking up an increasing chunk of the market. Nevertheless, for most self-builders the choices revolve around plain tiles, interlocking tiles and slates.

The costs set out below relate to a modest L-shaped bungalow with a roof area of around 180m² and with one valley, hip and ridge tiles, and a universal dry hip and ridge system. To simplify the comparison, the same clay ridge and hip tiles are specified. The valleys for the plain tile and slate options are assumed to be lead, while the valley for the interlocking tile option is GRP. (If valley tiles were required for the plain tile option the price would subsequently increase, as each valley tile would cost around £5.)

In Scotland, a layer of sarking decking is required over the trusses and beneath the underfelt, necessitating counter battening down the roof.

Plain Tiles

These are the small – usually 267x165mm – rectangular tiles that give so many country properties that distinct feeling of mellowness. Traditionally they were made of clay and they often had a camber naturally built into them in one or both directions, causing them to lie slightly unevenly. Modern versions in either clay or concrete can mimic this, but the older and more traditional tiles are still available – albeit often handmade and, therefore, much more expensive.

Of the three mainstream roof covering choices, plain tiles, whether clay or concrete, tend to be the most expensive, and that's mainly down to the increased labour costs of having to lay and fix around 60 tiles per square metre. Added to this, the



DAVID SNELL

David is the author of *Building Your Own Home*, a 13-time self-builder and has been building homes for 50 years



Above: Handmade Clay

These charming roof tiles, with blue in the blend, are from Heritage Clay Tiles

overlap on the tiles means that there is practically three times the amount of battening required and, while the batten itself is cheap, the labour to fix it is much more intensive.

Rosemary machine-made clay roof tiles

Tiles (10,716 tiles @ £450/1,000	£4,822.20
- Labour (14 days)	£3,528.00
Breathable membrane (5 rolls)	£324.60
Batten (@ 31p per metre)	£527.85
- Labour to underfelt and batten	£2,666.52
Eaves support tray labour and material	£239.81
Universal dry hip and ridge system	
and ridge and hip tiles	£3,989.00
- Labour (5 days).....	£1,260.00
Valley lead	£92.42
- Labour	£36.12
Nails and fixings	£81.18
Waste clearance	£295.00

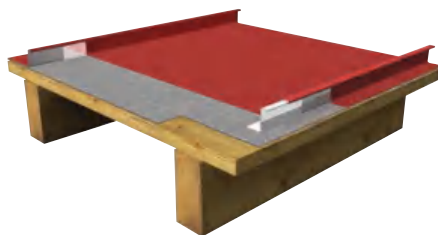
Total£17,862.70

Interlocking Tiles

This is the cheapest roof covering option and it is the one that many volume housebuilders default to for that very reason. ➡



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BUILD COSTS ROOFS

Once again, there are many versions both in clay and concrete with some that mimic traditional single roll pantiles, some that emulate (without close inspection) the flat planes of slate roofs and then there are others which unashamedly present a profile in their own right.

Just because they are the cheapest option, doesn't mean that they don't have a place in self-build, particularly where many infill plots have to fit in with existing styles and choices of materials.

Each interlocking tile costs over twice the cost of a plain tile. But, at an average of 11 to the square metre, far fewer tiles are needed and the labour costs for fixing them are significantly reduced. The cost of battening the roof is also much less as the gauge or distance between the battens is 300mm or more.

Marley Modern interlocking roof tiles

Tiles (1,980 tiles @ £1,100/1,000)	£2,153.80
- Labour (7 days)	£1,764.00
Breathable membrane (5 rolls)	£324.60
Batten (@ 31p per metre)	£139.50
- Labour to underfelt and batten	£756.00
Eaves support tray labour and material	£239.81
Universal dry hip and ridge system	
and ridge and hip tiles	£3,989.00
- Labour (5 days)	£1,260.00
GRP valley labour and materials	£61.00
Nails and fixings	£81.18
Waste clearance	£295.00

Total£11,063.89

Slates

The waterways and canals of the Victorian era made the transportation of slates from the Welsh hills much easier and their use and popularity grew. Today, they are still one of the most popular forms of roof covering, despite the fact that only a tiny minority come from Wales and the rest of the UK.

Natural slates are now imported from China, Brazil and Spain in colours that can closely follow the traditional, and much more expensive, Welsh equivalents.

Natural slates, like plain tiles, do not have any drips or contours and therefore have to be laid in such a way that every part of the roof is covered. This means that they are treble lapped, whereby, if one drilled down through any slate, you would be going through three slates before you got to the underfelt.



Interlocking Clay (That Looks Like Slate)

Wienerberger's Rivius clay roof tile (it is coloured to look like slate) reduces labour costs due it being interlocking and its 10 per cent larger format. Coverage is 9.5 tiles per m² and the cost is approximately £1.40/tile — totalling £13.30/m²

Man-made slates are also available — those that directly mimic natural slates are no cheaper but are perhaps slightly more durable. Others conspire to look like natural slates, while actually being interlocking; whether they ever achieve their goal of looking like the real thing is debatable.

Natural Spanish slates

Slates (3,547 slates @ £1.27 each)	£4,504.69
- Labour (12 days)	£3,024.00
Breathable membrane (5 rolls)	£324.60
Batten (@ 31p per metre)	£263.93
- Labour to underfelt and batten	£1,389.60
Eaves support tray labour and material	£239.81
Universal dry hip and ridge system	
and ridge and hip tiles	£3,989.00
- Labour (5 days)	£1,260.00
Valley lead	£92.42
- Labour	£36.12
Nails and fixings	£81.18
Waste clearance	£295.00

Total£15,500.35

FLAT ROOF COSTS

Flat roofs tend to be priced on a supply and fit basis with some packages (e.g. single ply) including build-up, insulation, etc. as well. This all means comparing like for like is tricky. However, here are the headline prices for those wishing to put something in their budget at an initial stage:

FELT (TORCH-ON METHOD): Approximately £40-£50/m² fitted.

EDPM SINGLE PLY: Around £80/m² fitted.

FIBREGLASS GRP: Approximately £90/m² (including lead flashing, trim and installation).

GREEN ROOF: From £50/m² for a sedum roof

to £200/m² for a fully planted intensive roof (bear in mind that any reinforcements that may be needed for the roof will cost extra). **METAL:** Lead costs anything from around £50/m² not including installation. Zinc and copper are more at around £100/m² — again, this does not include installation. **H**

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➤ The Build Cost Calculator

A simple cost-estimating guide for people building their own home


One of the most important aspects when planning your self-build or home renovation/extension project is working out how much it is going to cost.

This figure will depend on the size and shape of the house, the level of your own involvement, where in the country you intend to build, and the materials you're going to use. If you can make even rough decisions about these factors, then you can begin to work out how much it is going to cost.

As a very general rule of thumb, expect a building plot to cost between a third and a half of the end value of the finished house. The costs of building a house will then depend on the variables listed above. All building work is usually quoted on a cost/m² basis. For example, a typical new four bedroom self-built home is around 200m² (with 100m² on two sto-

reys) and usually varies between £900-£1,500/m² (although self-builders achieve costs between £300-£3,000/m²).

Renovation costs are more difficult to establish as they involve many variables, but allow at least £1,000-£1,300/m² for work. This, added to the cost of the plot/house and with a 10-30 per cent contingency, should result in less than the final end value of the house.

The table below, based on information from the Build Cost Information Service (part of RICS), is updated monthly to help you work out a more accurate estimate (note, however, that these figures are for build costs only and do not account for VAT, which is not charged for self-build projects). There is an interactive online version at www.homebuilding.co.uk/calculator which guides you through the process. 

HOW TO USE THE TABLE

1. Identify your build route from the four options; 2. Identify your expected level of specification: 'standard', 'good' or 'excellent'; 3. Identify the estimated size of your finished house (either single or two/more storeys); 4. Choose your location; 5. Multiply the figure by your house size (the internal floor area).

		BUILD ROUTE A (DIY + Subbies)			BUILD ROUTE B (Subbies)			BUILD ROUTE C (Builder/Subbies)			BUILD ROUTE D (Main Contractor)		
		Standard	Good	Excellent	Standard	Good	Excellent	Standard	Good	Excellent	Standard	Good	Excellent
SINGLE STOREY													
>90m ²	Greater London	1212	1402	1686	1283	1484	1785	1354	1567	1884	1426	1649	1984
	South-East	1063	1230	1479	1125	1302	1566	1188	1375	1653	1250	1447	1740
	NW, SW, East & Scotland	966	1119	1345	1023	1185	1425	1080	1251	1504	1137	1317	1583
	Mids, Yorks, NE & Wales	924	1070	1286	979	1133	1362	1033	1196	1438	1087	1259	1513
91-160m ²	Greater London	1100	1347	1750	1175	1426	1853	1240	1505	1956	1305	1584	2059
	South-East	974	1181	1534	1031	1250	1525	1088	1319	1715	1145	1389	1805
	NW, SW, East & Scotland	886	1075	1397	938	1138	1479	990	1201	1562	1042	1264	1644
	Mids, Yorks, NE & Wales	847	1028	1336	897	1088	1414	947	1149	1493	997	1209	1572
161m ² +	Greater London	988	1296	1626	1046	1372	1721	1104	1449	1817	1162	1525	1913
	South-East	866	1136	1426	917	1203	1510	968	1270	1594	1019	1337	1678
	NW, SW, East & Scotland	788	1034	1298	835	1095	1375	881	1155	1451	927	1216	1528
	Mids, Yorks, NE & Wales	753	989	1241	798	1047	1314	842	1106	1387	886	1164	1460
TWO STOREY													
90-130m ²	Greater London	1166	1349	1657	1235	1428	1755	1303	1508	1852	1372	1587	1950
	South-East	1023	1183	1454	1083	1253	1539	1143	1322	1625	1203	1392	1710
	NW, SW, East & Scotland	930	1077	1324	985	1140	1402	1040	1204	1480	1094	1267	1557
	Mids, Yorks, NE & Wales	889	1030	1265	942	1091	1339	994	1151	1414	1046	1212	1488
131-220m ²	Greater London	982	1189	1508	1040	1259	1597	1098	1329	1685	1155	1399	1774
	South-East	862	1043	1323	912	1105	1400	963	1166	1478	1014	1227	1556
	NW, SW, East & Scotland	783	950	1203	830	1005	1274	876	1061	1345	922	1117	1416
	Mids, Yorks, NE & Wales	750	907	1150	794	961	1218	838	1014	1286	882	1068	1354
221m ² +	Greater London	906	1160	1456	959	1228	1542	1013	1297	1627	1066	1365	1713
	South-East	795	1017	1278	842	1077	1353	889	1137	1428	936	1196	1504
	NW, SW, East & Scotland	723	925	1163	766	980	1231	808	1034	1299	851	1089	1368
	Mids, Yorks, NE & Wales	692	885	1112	733	937	1177	773	989	1243	814	1041	1308

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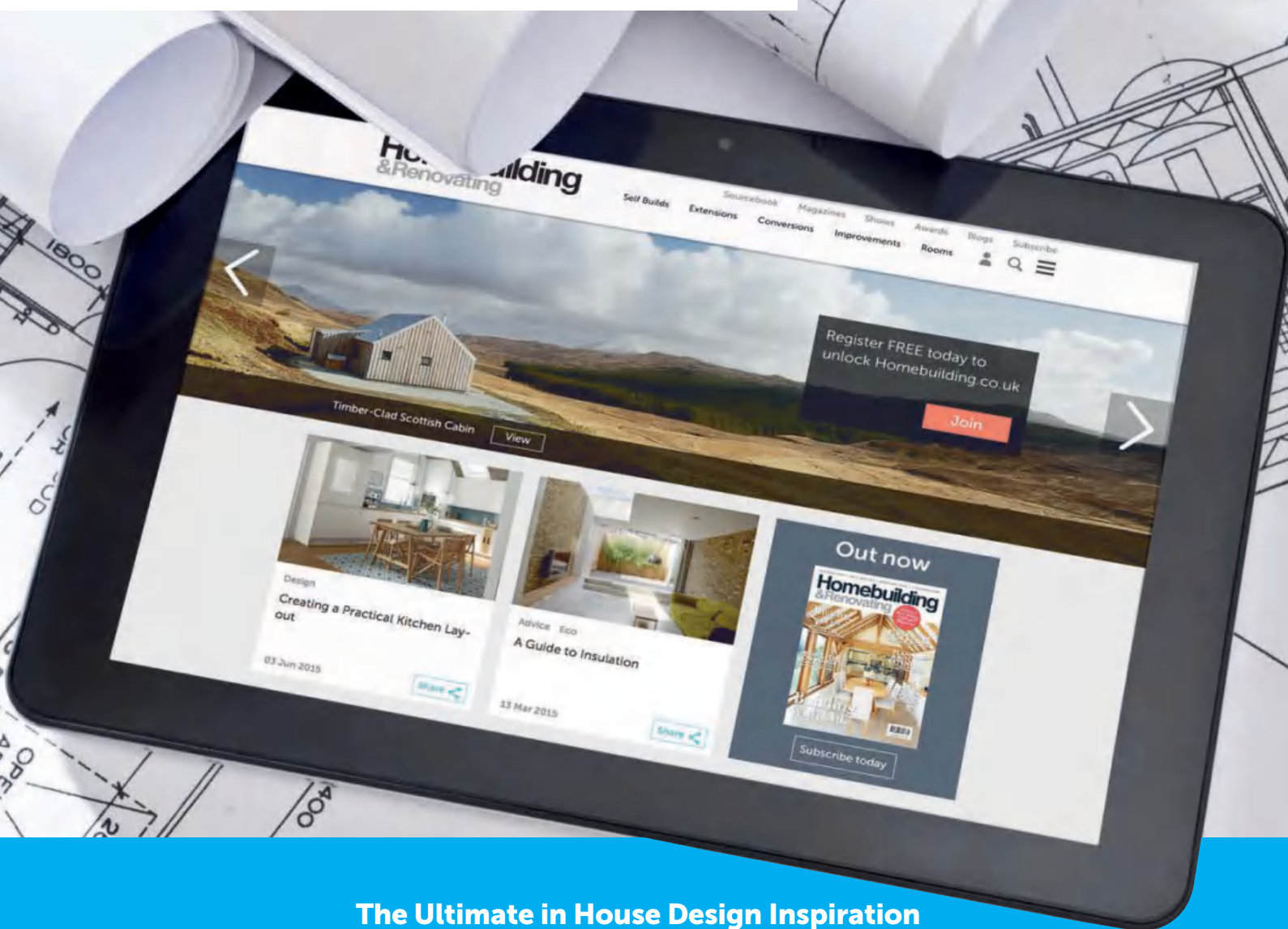


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The Art of Repointing

At some stage in the life of your home, the mortar between your masonry will need repointing. Natasha Brinsmead gives you the whens, whys and hows



NATASHA BRINSMEAD is our Associate Editor and an experienced renovator. She's in the middle of a major renovation and extension of an Edwardian home — a lot of it DIY

Don't underestimate the importance of pointing. When it comes to brickwork and stonework, the mortar can account for around 15 per cent of the overall surface area and has a huge overall impact on the success of your wall. Done badly, with poorly mixed mortar spread all over the brick itself, and/or if the mortar is too dominant, it can spoil even the best brick — done well, it can give an alluring texture and shadow to any elevation.

As the primary defence against water ingress, as well as having a vital structural role, mortar is a critical aspect of a home's maintenance schedule and shouldn't be ignored. When taking on older homes it should be high on the priority list — it can often be a source of leaks and damp in homes in need of wider renovation. Given the requirement for working at heights repointing is usually a job that is outsourced to a professional. But how do you approach it?

The Basics

Mortar is the substance that separates individual masonry units from one another — not, as many people believe, holds them together. It also fills any irregularities that might occur on the bedding faces of the bricks or blocks. Whether your

home is built of brick, stone or concrete blocks, mortar will play an important part in your home's construction.

Mortar is — or should be — softer than your bricks and this is why at some point in the life of a building, it will begin to show signs of ageing due to the weathering. Believe it or not, you want this to happen — the alternative is that the mortar is harder than the bricks and that they take the brunt of weathering, eroding and meaning portions of wall need to be rebuilt, which can be an expensive and disruptive job.

Repointing is simply the task of renewing the outer portion of the mortar joint, and a good repointing job on your home should last up to 50 or 60 years.



DAVID GADSBY/ISTOCK

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HOW TO GET IT RIGHT

- Rake out the damaged areas of mortar. This is usually done using a hammer and chisel. In areas where the mortar has come very loose, only the chisel will be needed to remove it. Using a narrow chisel around windows and doors minimises the risk of pushing loose pieces further in around the frames.

- The use of an angle grinder should really be avoided — it is easy to slip and damage the face of the brickwork or stone and is unnecessary with most traditional lime-based mortars. The only time an angle grinder may be unavoidable is when removing super-hard cement-based pointing.

- When you have a space large enough to take the new mortar, stop raking out and brush the joints down to remove dust and smaller pieces of remaining mortar. Then give the joints a spray with water — this helps the new mortar dry out evenly. Wait for the water to dry off before beginning to repoint.

- It is hugely important to ensure that each batch of mortar you mix up is the same in order for the look to be consistent. Aim to replicate the colour, texture and durability of the existing mortar. This may mean using several different sands together until the desired result is achieved.

Make sure you carefully measure each component of your mortar and make a note of the quantities used to ensure each bucket load matches the last. The final mix should have a firm but workable consistency.

- Beginning from the top down (in order to keep any dust and water spray away from freshly repointed joints), push the mortar firmly into the prepared joints, ensuring you leave no gaps. A slightly open final texture tends to look more attractive than a very smooth one. An easy way to achieve this is to gently rub the filled joint with a stick or rubber, and then to softly brush it over before it dries.

- To avoid the new mortar drying out too quickly, spray the joints lightly with water from time to time.

When to Repoint

If you can easily see open joints around the mortar bed, then it is time to think about repointing.

The good news is that this is a straightforward job and the materials required to carry it out are not expensive. On the downside, it is a fairly labour-intensive task, meaning the cost of employing a builder to do it for you may be considerable — you might also find it hard to pin down a tradesperson who will be willing to come out to do bits and bobs of repointing.

For this reason, many people choose to carry out repointing on a DIY basis, as and when the need arises. Obviously this requires scaffolding hire and a head for heights in most cases.

“Cement mortars are harder, more brittle and less porous than lime and will weather slower than the bricks”

Which Mortar?

A large range of textures and colours (from dark to light) can be achieved when mixing mortar. The majority of homes built up to and including the Victorian era used lime mortar. The use of cement in repointing mixes does tend to be a bad thing (although it is still frequently done) causing decay to occur earlier than with lime mixes and damp more likely to raise its head. Cement mortars are harder, more brittle and less porous than lime and will weather slower than the bricks themselves.

Mortars containing cement tend to be more susceptible to salt and sulphate attack, while mortars containing only lime (putty or hydraulic) and sand are not vulnerable to this kind of damage. Lime mortars are more expensive than cement — but in the long run they can actually save money as putting right problems caused by inappropriate cement mixes can be costly. **H**

How to Get the Best From Your Architect

It's one of the most important working relationships you'll have during a self-build or renovation project. Our panel of architects reveal how to make the most of the service they offer

CHOOSING AN ARCHITECT

BUILD A GOOD RELATIONSHIP

"A strong rapport can make all the difference. It cannot be overstated how important relationships are: between client and architect, client and builder, and builder and architect. Even the smallest project requires a sense of 'simpatico' and trust to complete, while a new build represents a huge leap of faith.

"Clients should like their architect and vice versa, but more importantly they have to be able to trust them. It is likely that there will be difficult stages during the design and construction process, and it makes a great deal of difference to the project if both parties trust each other and feel that the other has their back during more challenging times.

"Do what the Japanese do before signing business deals — go out for a drink with them (karaoke is optional)." **Kieran Gaffney, Konishi Gaffney**

CHOOSE SOMEONE WHO CAN DELIVER ON THE DETAIL

"In order to manage this wonderful process we call self-build, finding the right architectural fit is critical to the success of a project. The architect you choose must, as a general rule, be flexible, have a good sense of humour (even during the difficult times in the build), be a good collaborator and communicator, general councillor, strong concept designer, stay calm in every situation and have an excellent eye for detail.

"Overall, choose someone you trust, get along with and who is going to deliver you an original crafted home. Don't choose the cheapest — interview several architects. Ask exactly what their deliverables are in terms of service, drawings, reports and managing the process of planning, tendering the building project and delivering the detail on site. Anyone can sketch and draft out a concept, but who out there can really deliver the detail; the real architecture?"

"To deliver truly great projects you also need to be prepared to compromise, as clients' budgets only stretch so far. Find an architect who can think creatively about the use of different types of space and materials, while still achieving the end result — that is a real skill."

Darren Bray, PAD Studio

TRUST YOUR INSTINCT

"Don't be tempted to rule out architects that charge a fee for the first visit/meeting — the best architects are busy and you are very likely to receive great advice and creative inspiration from talking to them, so there is a value attached.

"Trust your instincts at this stage. The best projects result when architect and client instinctively understand each other. You'll spend a lot of time working together, revealing your personal dreams, wildest aspirations and day-to-day practical needs. Family politics, births, life plans and finances will need to be considered, so it's crucial that you feel comfortable with your architect and that they can empathise with you.

"You may be happy to place your trust in one person at this stage — in which case, you need to make sure that you are comfortable with their fee proposal and away you go. Or, you may invite proposals from more than one architect. Consider these carefully but remember that the difference between fees will be a tiny proportion of your overall spend. A good architect will design, specify and manage your project efficiently and add more value to your home." **Kate Cooper, Absolute Architecture**

TALK PROJECT BUDGET FROM THE OUTSET

"Be realistic about budget and timescales, and talk about these at the beginning of the project — the architect will advise on this based on similar experience," says Colm Tamney of AIR Architects. **"Budget is vital from the outset, whether that is a project budget or build budget. Fees for all consultants and statutory fees are often overlooked (and not to forget the dreaded VAT on alterations/extension projects),"** adds Neil Wall of Studio West Architects

LOOK AT THEIR SOCIAL MEDIA, TOO

"It's a fairly easy task to search online for local architects and the better ones tend to have a good online presence. Look at social media pages as well, as these are often better at communicating an architect's personality and likes and dislikes, as well as current projects." **Kate Cooper, Absolute Architecture**

ADVICE GETTING THE BEST FROM YOUR ARCHITECT

CHOOSE AN ARCHITECT WITH LOCAL KNOWLEDGE

"Do your research. Working with a local architect is always helpful. They will know the area, have relationships with planners, builders and suppliers, and they will be more available to you. Seek recommendations from friends, look at buildings you like in your area and find out who the architect was (planning records can help)," says **Kate Cooper of Absolute Architecture**.

Neil Wall of Studio West Architects adds: "They will also know the local terrain, and be in tune with the local context on many levels. They'll know the vernacular and how to use that when coming up with a design. They'll also know the way local planning works its restrictions, and how to manoeuvre around them to try and get the dream house you want. Finally, it's very important your architect is on hand to visit the site."

GOOD DESIGN DOESN'T HAVE TO BE EXPENSIVE

"It's crucial to employ an architect who listens to what you say and responds to your concerns. All architects have different interests and business models, so you need to find one that is right for the budget and design ambitions. Ask them lots of questions on the phone and when you meet, and see how they respond. Good design takes time and, therefore, costs money, but a well-designed building doesn't have to be expensive. Push the architects on costs. Ask about some of their recent projects, what the budgets were and how much they actually cost. Can they explain to you what your budget means you can achieve?"

Graham Bizley, Prewett Bizley Architects

LOOK FOR AN ARCHITECT WHO SHARES YOUR VISION

"It is essential that a client is familiar with the work of their chosen architect and shares similar taste in design. It is pointless appointing an architect known for producing immaculate glass cubes if your vision is of rustic stone."

"Most clients choose an architect as they have a track record of producing similar sorts of projects to their own. Experience working on a particular building typology yields a depth of experience and research for an architect to draw on. Often underestimated, though, is that architects are adept at designing a whole range of buildings."

David Nossiter, David Nossiter Architects

START WITH A FEASIBILITY STUDY

"This is often a long-term relationship that you are establishing, involving a long process of decision-making and substantial sums of money. It is essential that you do your homework, seek recommendations from other clients, visit completed projects and understand as much as possible about the way in which your preferred architect works."

"This works both ways, of course, and all clients come with their own set of demands, relationship dynamics and financial constraints. We tend to recommend starting with a feasibility study, which develops and tailors a brief that fits the site, budget and time frame, and explores initial design proposals. This initial pre-planning period is financially low risk for the client and allows both parties to establish trust and to understand each other's role for the journey ahead."

Niall Maxwell, Rural Office for Architecture



Kate Cooper,
Absolute Architecture
(absolute-architecture.
co.uk)



Neil Wall,
Studio West Architects
(studiowestarchitects.
co.uk)



Andy Ramus,
AR Design Studio
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Kate Stoddart, architect
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Lesley Hally,
LA Hally Architect
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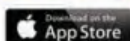


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DEVELOPING A BRIEF

PROVIDE INSIGHT INTO YOUR LIFESTYLE

"Before you hire an architect to design your dream self-build, you need to prepare a brief for them to work with. Creating this brief is one of the most important things you will do, and not taking time to consider it carefully can be detrimental to the success of the project. The brief is an ever-evolving document, which first sets out a 'wishlist' of priorities your dream home should include. As a minimum, it should cover the basics, such as the number of rooms required, or the architectural styles you like or dislike.

"How you and your family live in your home is an important factor to keep in mind, too. For instance, do you come home from work and all congregate around a breakfast bar in the kitchen, with the kids completing homework while mum and dad cook dinner? These types of scenarios are fundamental to thinking out your design brief criteria. Consider how your self-build will function as a family home and what spaces need to be your priority.

"It's also recommended you match the scale of your project with a practice with the required experience. For example, if your project has the potential to be a large-scale one, finding an architect with a good track record of bigger projects is sensible."

Allan Corfield, Allan Corfield Architects

FIND OUT WHO WILL LEAD ON YOUR PROJECT

"Ask who will be involved in the project from the office, on a day-to-day basis and at higher level. Find out who will be the main point of contact and what their experience is."

Colm Tamney, AIR Architects

TRUST IS KEY TO DEVELOPING A DESIGN

"In order to design your home, your architect needs to fully understand your life. It takes more than a simple brief about how many bedrooms you need, or how big the kitchen should be. We spend as much time as we can with you, making sure we understand the logistics, the order and the pace of your life, prior to us getting to a design stage. We spend time getting to know you, so that we can collate as much information as we can to go forward with your dream home. From this, a huge amount of trust tends to develop and with this established level of confidence, you're happy to let us get on with the work, safe in the knowledge of knowing we've learnt enough about you to do a good job.

"The success of the project is based on this trustful connection and is what helps to shape a truly great project. The rapport between client and architect can almost be treated like a friendship; it's great to be able to create these relationships with people and it's part of why I love being an architect so much."

Andy Ramus, Director of AR Design Studio

SIMPLE SKETCHES AND MOOD BOARDS HELP

"Often simple sketched plans of a layout – such as a bubble diagram of how rooms should connect or relate – can be helpful. This is often altered or influenced by the site, its orientation and any potential views, but is a good starting point. Style boards of the types of buildings, interiors or features you like are really helpful." Neil Wall, Studio West Architects

MAKE CHANGES DURING THIS STAGE – NOT THE BUILD

"A good client understands that achieving their design is a complex procedure that requires the architect to lead a team of specialists, from the structural engineer to the builder. We have meetings with our clients during each stage of the process to review the designs and agree the next steps to be taken. We encourage all our clients to ask questions if they do not understand anything or find reading the drawings challenging. 3D visuals help to explain ideas and are now common for all but the smallest of projects.

"It is also important to realise that no matter how well designed and thorough the organisation of a project, the building process is always one of discovery. This is particularly so when working with existing buildings; there are inevitably hidden historical defects. Contingencies should be in place. Some elements can be standardised, but every project is unique and bespoke in its own way.

"What architects also wish to avoid as far as possible are changes to the designs once the project is in the construction phase. Minor amendments are inevitable, but client changes on site nearly always impact on time and cost."

David Nossiter, David Nossiter Architects

DON'T CLOSE YOURSELF OFF TO OPPORTUNITY

"A good client isn't after an easy ride – a great client wants to challenge their architect and is open to being challenged. A design brief isn't a fixed thing, it's a starting point that needs questioning and testing throughout the process. Design and briefing go hand in hand and a good client embraces that process knowing it can lead them to a more coherent, specific and enjoyable solution that delights them every day they use it. A client that starts knowing exactly what they want has already closed themselves off to so much potential; solutions that surprise are often the ones that stick."

Paul Testa, Paul Testa Architecture

COST THE PROJECT ACCURATELY

"The best client relations happen when you have a clear budget, and you can define your requirements in the design and specification stages and stick to them, with a project drawn in detail and costed accurately with funds secured. Don't forget the contingency – 10 per cent is a sensible amount to set aside for any unforeseens; there's always some."

Neil Wall, Studio West Architects





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APPOINTING AN ARCHITECT & TROUBLESHOOTING

COMMON PROJECT PITFALLS TO AVOID

"With any project there can be various pitfalls: some of the most obvious to consider include not paying for a professional survey at the start of the works. When considering extension and renovation works, a proper survey, prior to your architect commencing with the design, is invaluable. You will be safe in the knowledge that walls have been drawn at the right thickness, and in the right place, which can affect the structural design. Also, other issues will have been highlighted during the survey, which, if not taken into account, could cost extra while on site — such as the positions of trees with a Tree Preservation Order or manholes adopted by sewerage companies that may charge for you to build over/near a public sewer. By having a professional survey in place at the outset, you can factor these extra costs into your budget from an early stage, or possibly design around them.

"It's always best to inform your architect during the design phase if there are items you want to change. It is a lot less expensive to change a design on paper than it is to make changes on site. If you don't understand elements of the design, ask your architect to explain it further.

"Tendering without a schedule of works or bill of quantities is another pitfall. Working drawings are extremely informative but they don't go into fine detail and specify the materials you want. For example, one client expected the use of an expensive chalk-based paint but, because this was not written on the drawings, the contractor had allowed for trade emulsion. We tender with working drawings and a schedule of works to give as much information as possible. It may cost more to have the schedule of works written, but can save money, and stress, in the long run by avoiding ambiguity while on site.

"Choosing a builder without seeing their work is another mistake. Prior to tendering we advise our clients to visit a builder's past projects to ensure the client is satisfied with the quality of work they see. When we tender with a new builder, we ask them for a reference from both a client and a previous architect; we talk to these referees to understand their view on the builder's speed on site, quality of works and how costs were handled. From there we consider whether they should tender or not."

Lesley Hally, LA Hally Architect

CHANGING ARCHITECT DURING THE PROCESS

"If things are not working out with your architect, you should terminate the working relationship as soon as possible. This should not happen, though, if research and homework is done before and you've met with two or three architects and seen examples of their work — and met with their previous clients.

"If fees are paid in accordance with the appointment with your architect, you own the right to use the design on that site. You do not, however, own the right to copy the design on another site. The architect owns the general copyright of the design."

Neil Wall, Studio West Architects

WHAT TO PAY

"As a guide, RIBA suggests that a full service for a new-build home is around eight per cent of the total construction cost. However, you could look for a practice that offers a fixed rate. (For example, unlike most architectural practices operating on a percentage of construction cost, our fee proposal is based on a fixed and itemised cost — meaning the self-builder knows from the beginning how much to expect to pay at particular stages of the project, and can therefore budget accordingly.) Keeping an eye on the budget is difficult, so hiring an architect who gives you the numbers upfront can really make a difference."

Allan Corfield, Allan Corfield Architects

BE CLEAR ABOUT THE LEVEL OF SERVICE REQUIRED

"Architects/designers present their fees in different formats, which can make it very tricky for the first-time client to compare. For example, a set of building control drawings from one architect might only cover the basic Building Regulations issues in order to get you a conditional approval. The drawings might not actually have enough information to issue a good tender, agree a fixed-price contract and build from. I suggest requesting an example set of drawings for a previous project so that the level of detail and specification can be understood.

"To get the right fee proposal, make sure that you brief your architect as to the level of service you actually require. Do you want them to quote for just a skeleton service, whereby the design is progressed just as far as getting the basic shell up? Or do you expect them to assist with lighting design, bespoke staircases and fitted joinery? These bespoke tasks could potentially double the design time and, therefore, fees. It is possible to outsource the design of such items to other specialists, which may save on budget, but might not result in a cohesive design."

Kate Stoddart, architect and property consultant

APPOINT YOUR ARCHITECT IN WRITING

"When appointing an architect, or any professional for that matter, it is important that the agreement is confirmed in writing. There are several ways to do this, but the most formal approach is for the architect to provide a RIBA Standard Agreement Contract. This is filled out by the architect and the client, and forms a legally binding contract.

"The other widely used method is via an exchange of letters. The architect would provide the client with a letter of intent — or 'fee proposal' — which the client then agrees to in writing. Both of these methods form a contract as they confirm the main areas required as follows: Who the contract is between; What it is specifically for; A time period for the service to be completed; The cost of the service.

"Whichever way you decide to appoint your professionals, it must be in writing!"

Allan Corfield, Allan Corfield Architects



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PROJECTS

Energy Labelling Hits Heating Systems

EU legislation, in force from September, will see big-ticket items like boilers, solar panels and heat pumps labelled for efficiency. Martyn Bridges explains the impact



MARTYN BRIDGES

Director of technical support
at leading heating and hot
water appliance manufacturer
Worcester, Bosch Group

Energy labels on household appliances, such as new washing machines, electric ovens and even lightbulbs, have been around for a good couple of years now, and provide a means of comparing efficiency — in many cases, the labels have become a key part of our purchasing decisions. From 26 September, boilers, heating controls and renewables are also set to be subject to similar labelling.

The ErP, or Energy-related Products, Directive has been set up by the EU to drive improvements in efficiency and performance of heating and hot water products and their contribution to the overall energy use of the property. So, from the end of September all compliant products will need to display a label illustrating, among other things, efficiency and noise.

Heating and hot water accounts for around 75% of our home energy usage, so when replacing or choosing a new heating system, a significant energy reduction is possible with the right choice of appliance. What the ErP gives homeowners is a standardised, clear, 'at-a-glance' guide to how efficient you can expect your heating and hot water system to be, and inform your buying choices accordingly. When compared to existing products that are being replaced, the difference may actually be quite surprising.

Boilers, Renewables and Cylinders are Included

Boilers, water heaters and other heating products up to 70kW, plus hot water cylinders under 2,000 litres all fall under this new regulation, as do heat pumps, solar thermal panels and controls. The new system will also work alongside the current A–G SEDBUK or SAP ratings for boilers, but also adds the new efficiency classes of A+ and A++, which will tend to apply where renewable technologies are incorporated.

As all of Worcester Bosch's products comply with the new

THE QUICK READ

➤ Boilers, water heaters and cylinders, heat pumps, solar thermal panels and heating controls will be subject to energy labelling under the EU's ErP (Energy-related Products) Directive, coming into force on 26 September 2015

➤ New boilers need to be over 90% efficient to be A rated

➤ If you're specifying a complete system, your installer should calculate the efficiency of the combined system


requirements, we have ensured the appropriate label will be supplied with each product. Your installer is then responsible for making sure you receive this; so be sure to ask if this is not automatically done for you.

Where you are having a complete system installed with controls and perhaps a new cylinder, for instance, your installer will also be expected to work out the efficiency of your complete system as a whole and record this accordingly.

The label itself should be familiar to us all as it will look very similar to those we are already used to seeing on televisions and washing machines, and will show where each appliance sits on the rating scale — as well as its kW output and decibel ratings where applicable.

While the new Energy-related Products Directive sees efficiency classes introduced ranging from A++ to G, you will tend to find most high-efficiency boilers will fall into either band A or B. To reside in band A the boiler has to achieve over 90% efficiency, while band B is between 86% and 89.9%. Renewable technologies, such as heat pumps, are more likely to be in the A+ or A++ bands, depending on the flow temperature.

Heating Controls will also be Subject to Labelling

Controls are included in the ErP Directive, too, but are defined using a 'class' system. These run from Class 1 for a simple on/off room thermostat, through to Class VIII for a multi-sensor room control for use with modulating heating appliances. Each control class equates to a percentage uplift in efficiency, too. For example, a Class VI weather-compensating control and room thermostat, such as the new Worcester Wave, will add 4% efficiency to the heating system. 



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Extension Project Step-by-Step Planner

What does a typical extension project look like? What are the critical paths and construction schedule? Here's our week-by-week guide and checklist

BEFORE WORK STARTS

- Find trades, obtain quotes and inform them of your schedule
- **Check lead-in times for materials to avoid delays**
- Advise Building Control of commencement
- **Arrange/amend insurance**
- If living on site, put measures in place to keep the building work separate from your living spaces
- **Arrange toilet facilities for trades if necessary**

WEEK
1

PREPARATION WORKS

- Ensure clear access to site
- **Have bricks,**

blocks and associated materials delivered to site and stacked in place

- Hire mixer and digger — this is only necessary if you are project managing, otherwise your builders or contractors will organise this on your behalf
- **Ensure the site is safe, particularly if you have small children**

WEEK
2

GROUNDWORKS

- **Builders arrive on site**
- Groundworkers dig foundations

- **Building Control visit to approve the foundations**
- Reinforcement laid within foundations, if required
- **Pipework, drainage or services laid within foundations**
- Concrete footing poured and levelled
- **Building Control visits to approve**

WEEKS
3-4

SUPERSTRUCTURE

- Bricklayers to build up to damp-proof course
- **Drains installed**

and trenches dug for associated pipework

- Insert concrete lintels into brickwork if a drain run requires it
- **Sand is then laid before damp-proof membrane is put down**
- Insulation fitted
- **Concrete slab poured**
- Arrange for Building Control inspection

WEEK
5

EXTERNAL WALLS BUILT

- **Check that the required materials**

are on site for the superstructure to commence, including lintels, door and window frames and wall ties

- Whether the brickwork or blockwork is built first will depend on your builder, but work now starts on the superstructure
- **Cavity wall insulation fitted**
- Wall ties inserted to fix the new walls to the existing
- **Lintels for windows and doors fitted**
- Door and window frames should be inserted as the walls go up

WEEK
6

INTERNAL WALLS BUILT

- **Internal walls are constructed**
- Order materials

such as windows, roof tiles, etc., which can sometimes have long lead times of up to five weeks

- **Check that the carpenter is all set for the following week and all materials are ready — including lead**

WEEK
7

ROOF STRUCTURE

- The carpenter will start building the roof structure

— or in some cases prefabricated roof trusses may be used

- **If you are having rooflights, the carpenter is usually in charge of fitting these at this stage**
- Dormers will be constructed if they are being introduced

WEEK
8

ROOF COVERINGS

- **Roofing membrane is laid over**

the newly built rafters

- Roof battens cut and fitted over membrane
- **Tiles/slates laid**
- Ridge/hip tiles laid and bedded
- **Valley tiles laid, along with finishing details, flashings, etc.**
- Fascias, soffits and verges primed/stained/painted
- **Floor screed laid**

WEEKS
9-10

WINDOWS AND DOORS

- External rendering if required

- **Windows and doors fitted into linings and frames that were (hopefully) put in place when walls were being built**
- Guttering and downpipes fitted
- **First fix carpentry, plumbing and electrics**
- Studwork walls built, door linings fitted and pipes boxed in

Right: Superstructure

The trick with building extensions is to delay breaking through to the existing house to as late as possible in the build schedule. Here, existing bricks have been removed ready to take the new junction

WEEK 10

BREAKING THROUGH

⇒ Now is a good time to ensure you get sealed off from

the building work as things will get messy

⇒ Steels are put into place, along with padstones — sizes should have already been approved by Building Control

⇒ Joins made good

WEEK 11

PLASTERING

⇒ Walls are boarded, with insulation placed between battens on existing uninsulated external walls

⇒ Plastering — followed by a period of drying out (around a week before decorating can begin)

WEEK 12

SECOND FIX

⇒ Second fix electrics carried out (sockets made live,

switches put in place, lights fitted, etc.)

⇒ Second fix plumbing (taps, connections, etc.)

⇒ Flooring laid (sometimes people choose to lay flooring after the kitchen is fitted)

⇒ Kitchen units installed (if this is a kitchen extension)

WEEK 13

SNAGGING

⇒ Leaks, electrical problems, heating system issues, sticking

doors and windows — report them all to the relevant trades as soon as possible after finishing **H**



JEREMY PHILLIPS

Extension Checklist

Make sure your project runs smoothly with our handy 'don't forget' checklist

- ⇒ Obtain planning permission, if required, prior to works commencing
- ⇒ Submit application to your local Building Control
- ⇒ Arrange access for delivery lorries and consider where skips can be placed
- ⇒ Get quotes from trades
- ⇒ If living on site, arrange schedules to minimise impact on day-to-day living
- ⇒ Agree timescales and schedules with trades to avoid delays on site
- ⇒ Arrange or amend insurances as necessary (you may need a new policy)
- ⇒ Inform neighbours of work commencing
- ⇒ Organise the hire of plant, toilets, etc.
- ⇒ Set up accounts with your local builders' merchants
- ⇒ Check lead-in times for materials and order where necessary
- ⇒ Notify Building Control that you are commencing works
- ⇒ Make space available to store materials safely on site
- ⇒ Make sure water will be available for cement mixer (and later plastering) where it will cause minimal mess inside
- ⇒ Arrange scaffolding if required
- ⇒ Make second fix decisions (such as the position of lights and sockets) as early as possible
- ⇒ Build in time for plaster to dry out before decorating commences
- ⇒ Make sure plasterers and other trades know if you are carrying out aspects of their jobs on a DIY basis

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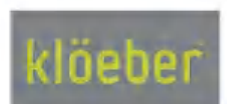
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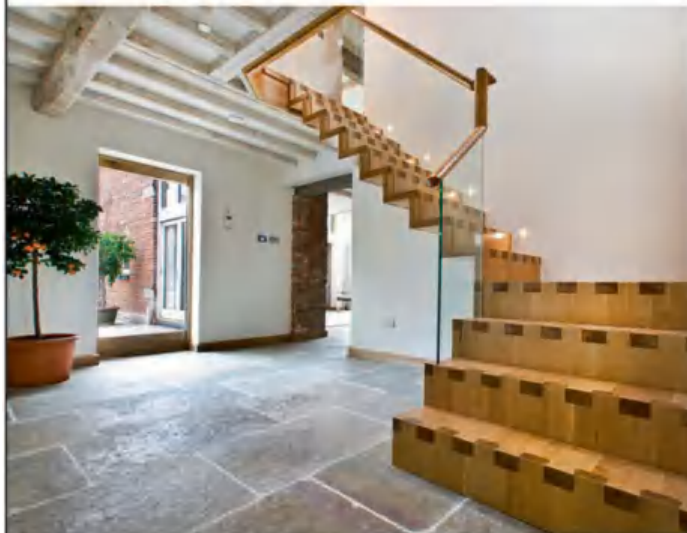
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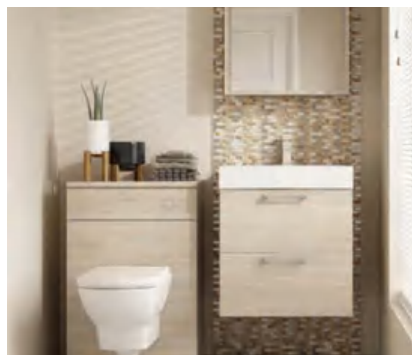
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Below: Aliano two-drawer wall-hung vanity unit, from £124.99; in-line basin, from £99.99; WC unit, from £169.99; wall-hung WC, £249.99; mirror box, from £149.99

Left: Capra basin, from £259.99; semi-pedestal, £94.99; wall-hung WC, £249.99; soft-close seat, £89.99; Taura 1850 bath, £949.99; Linear wet-room panel, from £299.99



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Space-saving designs have become a staple feature of most bathrooms and en suites. In particular, shower-baths offer a fantastic solution for a small space, providing the best of both worlds with a bathing and showering experience that isn't impacted by the space's limitations.

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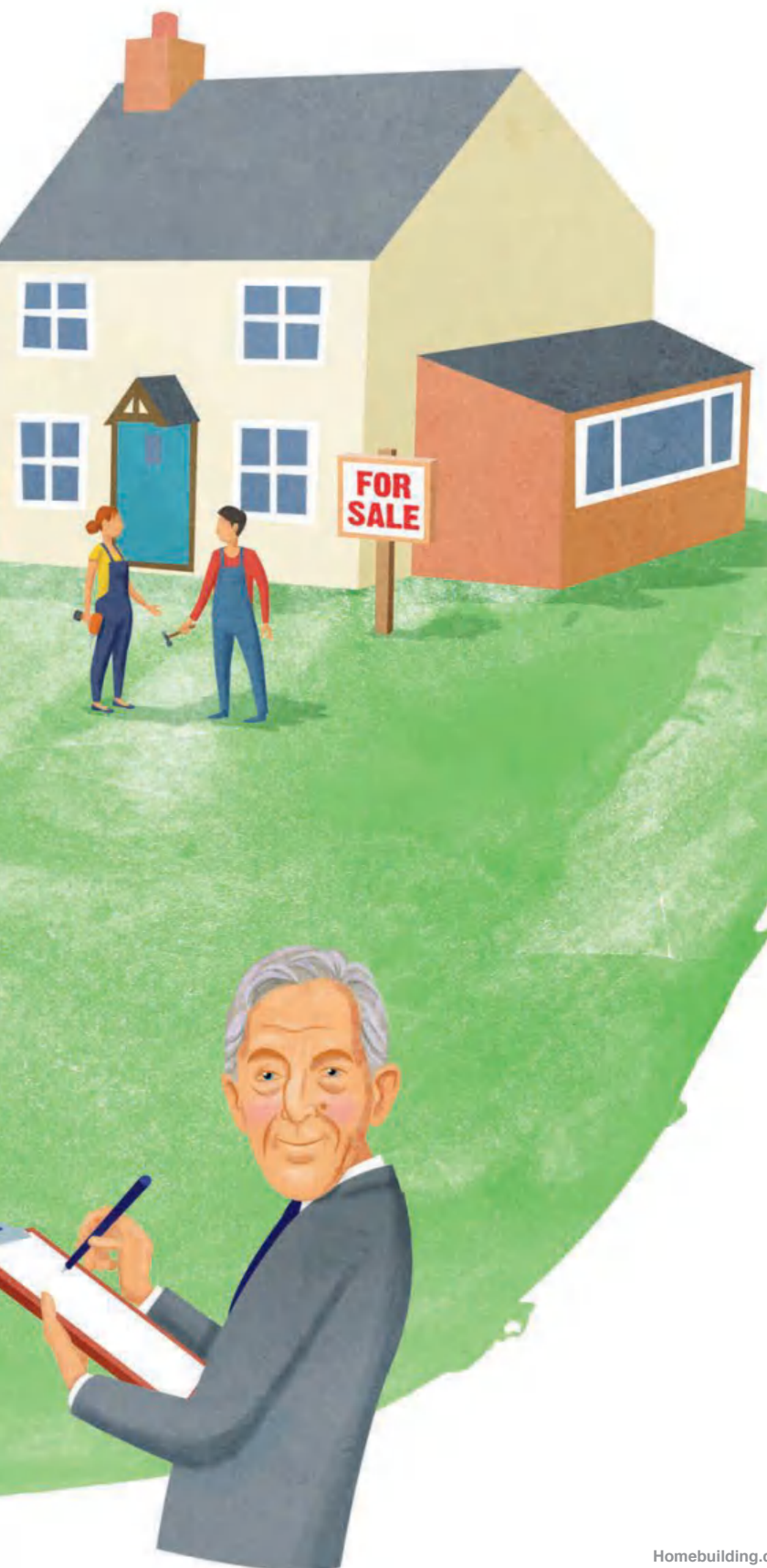
ADVICE

A Tale of Two Homes: Devising Energy Strategies

A considered energy strategy is the most cost-effective way of improving the efficiency of a home. Energy consultant Tim Pullen explains how it is done, using two very different renovation projects by way of example

Illustrations: David Stevens





TIM PULLEN

An expert in sustainable building and energy efficiency, Tim runs the green home consultancy Weather Works

It's fair to say that, given time and endless budget, the majority of us would prioritise improving the energy efficiency of an existing home during a major improvement project (or a new build for that matter). However, very few of us have the luxury of both, and improving the thermal efficiency of a home and how it's heated tends to come down to a question of cost-effectiveness — what measures will strike a balance between initial capital cost and future running costs, and what measures will simply prove uneconomical?

A key part of my role involves devising energy strategies for homeowners. In basic terms, an energy strategy is a detailed plan for optimising the thermal performance of the house — think insulation, upgraded windows, etc. — with the aim of lowering the heat demand and making the house a more comfortable place to live, in the first instance. Secondly it involves recommending the most suitable and cost-effective heating system for the homeowner's budget and lifestyle.

When it comes to creating a strategy, a homeowner's future plans are a vital consideration. No two homeowners, their lifestyles nor their priorities for a home are quite alike. For some, the aim of a renovation project is to create a forever home, while for others, it's a stepping stone — a home for a couple of years, but a means of climbing up the next rung on the property ladder.

Here, I'll be assessing two properties (both off mains gas) for homeowners with different priorities. The first project will see a 1960s house undergo an extensive extension and remodel to become a 'forever' (or at least, long-term) home for a family. Future running costs are a priority and a portion of the project budget will be invested accordingly in improving the thermal efficiency of the house, as well as a new heating system utilising renewable energy. The second project will see a 200-year-old cottage renovated and extended. The couple behind the project will be undertaking most of the work themselves, with the aim of renovating for profit.

PROJECT ONE — THE FOREVER HOME

The clients are refurbishing and extending a 1960s three bedroom house to upgrade the accommodation and to add further bedrooms. The two storey house sits on a large, relatively flat plot with good access and has a number of out-buildings. There's some 205m² of floor space — the extended building will bring the floorspace up to 322m². Currently the house is draughty, cold and difficult to heat.



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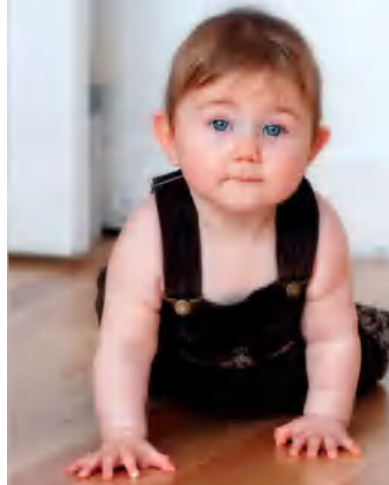
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ADVICE ENERGY STRATEGIES

The house is of cavity wall construction with various timber, stone and brick outer skins, and features a mix of flat and pitched cut roofs under tiles. The fenestration is fairly old double glazing in PVCu frames. The ground floor is concrete.

There is considered to be no insulation to the walls or ground floor, and only 100mm of mineral wool to the roof. An oil-fired boiler, which is around 15 years old, is the current principal heat source. The boiler has a capacity of 26kW and, as new, had an efficiency of >80%. The boiler is non-condensing and efficiency is likely to have dropped to below 60%. It's also worth noting that any new heating system installed must be able to cope with the increased heat load which will be created by the large extension.

The existing fuel oil consumption is said to be between £1,500 and £2,000 per year. Taking the higher figure, that would equate to some 5,000 litres (at today's exceptionally low prices) with energy potential of 53,500kWh. Assume 60% boiler efficiency and deduct for domestic hot water (around 3-4,000kWh) and that figure then equates to a space heating energy consumption of around 142kWh/m²/yr.

Minimising Energy Consumption

This is a 1960s building that has had no significant upgrade to its insulation or airtightness since being built. Clearly then, in terms of an energy strategy, this is the place to start:

- **LOFT** — Increasing the 100mm of mineral wool in the loft to 300mm (or 120mm PUR insulation) would reduce the U value from 0.3W/m² to 0.14W/m².

- **WALLS** — The walls are currently uninsulated, with a U value of 1.16W/m². A couple of bricks could be taken out from at least two walls at DPC (damp-proof course) level to enable an inspection of the cavity for mortar or other accumulated debris. If the cavity is clean, injecting foam insulation will reduce the U value to 0.4W/m².

The homeowner has enquired about the use of 50mm-thick rigid foam insulation externally for the walls. Standard phenolic foam is not suitable for external use, so guidance will need to be taken from the manufacturer. In any event, at 50mm thick it will reduce the wall U value to 0.36W/m². Using this together with cavity insulation would reduce the U value to 0.22W/m². However, the effect would be to reduce space heating energy consumption by just 825kWh/yr — at a value of around £35 per year. It would be difficult to justify the extra cost with that level of return.

- **FLOOR** — The floor is currently uninsulated with a U value of around 1.8W/m². There are no plans to take up the solid floor. Therefore, the only option is an insulating underlay, such as Sempafloor, or an insulating primer like Therma-Coat — or a combination of both products. They can be installed under carpet and will reduce the U value to around 0.9W/m². More importantly it gives a warmer feel to the floor.

The floor to the extension can be fully insulated with 100mm rigid foam to achieve a U value of 0.16W/m².

- **WINDOWS AND DOORS** — New windows will be installed as part of the project, with a U value of 1.4W/m². New doors with an assumed U value of 1.4W/m² are also to be installed.

The extended building will have some 104m² of glazing.

There has been some discussion around triple glazing, and some of the larger windows and sliding doors are north facing. There is some benefit to triple glazing to those north-facing windows and doors, but there will be more benefit in directing attention to the airtightness of the building rather than spending funds on triple glazing.

- **AIRTIGHTNESS** — This is the key issue. Given the age of the original construction it is likely to be fairly 'leaky'. In addition, there are open fireplaces drawing heat from the house. Taken together it means that the airtightness is likely to be in excess of 30m³/hr (current Building Regulations call for no more than 10m³/hr).

The insulation measures recommended will have an impact on airtightness, but more importantly, sealing the chimneys and installing woodburning stoves will have a greater effect.

An initial airtightness test should be carried out, and a smoke stick used to find out where existing air leaks. There will be some that are not dealt with by the proposed insulation or woodburning stoves and so the test will provide the opportunity to deal with them. A target of 10m³/hr would be acceptable (if not good). It might be possible to improve on that figure but it needs to be considered that at 7m³/hr a mechanical ventilation system would be needed and installing such a system is not really an option. A second test will be needed at the completion of the works and a figure of between 7m³/hr and 10m³/hr would be ideal.

It perhaps goes without saying that trickle vents will not be needed but extract fans to the bathrooms and kitchen will be.

Heat Load and Energy Demands

Using the proposed insulation and airtightness levels, and including the planned extension, the probable energy loads are:

- Space heating: 20,616kWh per year
- Hot water: 3,000kWh per year
- Lighting and power: 5,000kWh per year

Remaining with heating oil and Grid electricity the annual running costs will be:

- Heating: £1,269 per year (at 46p/litre and assuming 80% boiler efficiency)
- Power: £775 (at a tariff comparison rate of 15.5p/kWh)

It's worth noting that heating oil is unusually and unrealistically low at around 40p per litre, at present. A more typical price would be in excess of 60p. The latter figure would bring heating running costs to £1,655 per year.

Renewable Energy Options

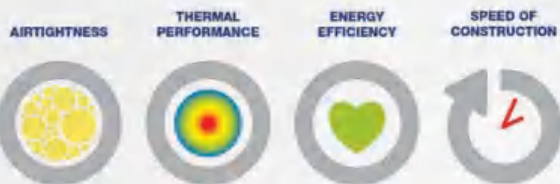
There are very few realistic options available to provide a satisfactory solution. However, the options are discussed here for the purposes of comparison:

- **AIR-SOURCE HEAT PUMP** — The size of the house and the levels of insulation possible mean that an air-source heat pump is not really a viable option. The peak heat load will be in excess of 16kW, outside the scope of a single air-source heat pump, and even if that were possible, running costs would be £1,307 — which is higher than heating oil.

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ADVICE ENERGY STRATEGIES

● **GROUND-SOURCE HEAT PUMP** — The peak load of 16kW means that an area of at least 800m² would be needed to install a ground-source heat pump. The space is not available on this site, so boreholes would be needed (probably three in total) the cost of which is likely to be prohibitive.

The existing heat distribution system will not support a heat pump either. Underfloor heating (UFH) can be installed to the extension, but the existing radiators will need to be replaced with high-efficiency, low-flow temperature radiators.

Capital cost, excluding boreholes, will be around £20,000, plus installation. The running cost will be in the region of £930, to include 50% of domestic hot water. The RHI (Renewable Heat Incentive) payment would be around £3,200 per year. All in all, however, this would represent a long payback period.

● **BIOMASS** — Wood pellet is currently the preferred option. Wood pellet systems do, however, take a good deal of space. There are two potential locations, both discussed during the site meeting, and both needing the installation of a heat main and second buffer tank. The latter will, of course, add to capital cost. Budget £75 per linear metre for the heat main and around £500 for a hot water cylinder.

A bulk fuel store will also be needed. A heating load of 24,000kWh per year indicates a fuel requirement of five tonnes per year. That could happily be supplied by two deliveries each year with a bulk store capacity of maybe three tonnes. There are bulk delivery price breaks and it may be advantageous to increase this to four tonnes, but that needs to be checked with the chosen supplier.

Capital cost would be around £10,000 installed, plus VAT, and the cost of the bulk store. A three tonne bulk store will add some £5,000 to the bill. Running costs will be around £1,200 per year and the RHI payment will be around £1,710.

● **SOLAR THERMAL** — A solar thermal array will allow the heat pump or biomass boiler to shut down over the spring and summer months and provide a useful top-up on bright autumn/winter days. Potential locations have been discussed and capital cost would be around £3,500 installed. The RHI returns will be some £400 per year.

The proposal is that the solar panels would be installed to the new flat roof. In which case, companies such as Sonnenkraft offer modules specifically for flat roof installation.

Heating Distribution

There's a suspicion that the existing radiators are undersized and there is a good chance that they contain a 'sludge' build-up. The recommendation is that all the radiators be changed, but what to will depend on the heat source chosen.

Heat pumps need to run at low temperature – 45°C maximum – and the existing radiators would not support that. A biomass boiler will work happily with simple pressed steel radiators, but a heat pump will need something like the Jaga Strada low-temperature radiators.

A more sophisticated control system is recommended. Installing full zone control is not practical but programmable radiator thermostats is possible, and recommended.

Suggested Heating Strategy

A biomass boiler is a better financial option, and will suit the family's lifestyle. Capital cost is high and will take a significant proportion of the budget, but the price of wood pellets has largely flat-lined over the past five years and there is no reason to suspect that situation will change. Clearly electricity prices will continue to rise, however. A biomass boiler with solar thermal back-up would be my recommendation. ➡

COST/BENEFIT COMPARISON

The running and capital cost comparison for the three viable options based on 2015 prices

	CAPITAL COST	ANNUAL RUNNING COST	INCENTIVE PAYMENT	FIVE YEAR COST*	10 YEAR COST*	20 YEAR COST*
HEATING OIL	£7,500	£1,269	£0	£6,345	£15,190 ⁽¹⁾	£32,880 ⁽²⁾
WOOD PELLET AND SOLAR THERMAL	£25,000 ⁽³⁾	£1,050	£2,000	-£4,750	-£3,500	£7,000
G.S HEAT PUMP AND SOLAR THERMAL	£23,000 + boreholes ⁽⁴⁾	£930	£3,600	-£13,350	-£15,900	-£6,600

* Figures reflect annual running cost and incentive payment (which runs for seven years under the RHI), but does not reflect capital cost

(1) Adding capital cost for a replacement oil boiler

(2) Adding capital cost for a second replacement oil boiler

(3) Assumes standard bulk fuel store

(4) Assumes COP (coefficient of performance) of 4.0 and 15.5p/kWh for electricity, including standing charge and VAT

N.B. The RHI figures used are those that apply from 1 July to 30 September 2015, and are as follows:

biomass 7.14p/kWh; air-source heat pump 7.42p/kWh; ground-source heat pump 19.10p/kWh; solar thermal 19.51p/kWh

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PROJECT TWO — RENOVATING FOR PROFIT

The homeowners are renovating a 103m² 19th-century, two-bed cottage to bring it up to modern standards and intend to add a small extension to house a third bedroom; this will likely add a further 15m². The house sits on a large, relatively flat plot with two outbuildings but there's relatively poor access — the cottage being at the end of a narrow lane. The cottage is one and half storeys, with just one bedroom on the first floor.

Currently the house is heated with electric storage heaters on Economy 7 (overnight) electricity tariff. The couple intend to sell the property in 18 to 24 months, so the capital cost of a new heating system is a big issue. There is no desire to retain the storage radiators, but equally it has been recognised that installing a wet heating system will be expensive.

The couple are doing most of the work themselves, but the rules remain the same and a well thought-out energy strategy will help focus their attention on the work that really needs doing, make the house more comfortable and more saleable.

The house is constructed of solid stone walls, except a 1970s extension which is cavity brickwork. The external finish is pebble-dashed render, which is in good condition. There is an A frame roof with slate tiles. Fenestration is fairly old single glazing in timber frames. The ground floor is concrete.

There is no insulation to the walls, ground floor or roof. As a consequence the Energy Performance Certificate (EPC), produced in October 2014, gives a G rating — as low as it can get! The EPC shows a primary energy consumption (heating, hot water and lighting) of 916kWh/m²/yr, and to say that is huge would be an understatement. But, at the time of the EPC, this was a wholly uninsulated house with solely electric heating, without any form of a control system, which is as bad as energy efficiency can get.

However, examination of electricity bills and calculation indicates that the historic primary energy consumption rate is

closer to 120kWh/m²/yr. It is entirely unclear how the figure of 916kWh/m²/yr is arrived at on the EPC (it's worth noting that figures presented on an EPC can be less than pinpoint accurate). The stated space heating energy consumption is 27,997kWh/yr and there is no data, no energy bills or calculated heat loss, that lead towards that figure. The calculated heat loss shows 10,692kWh, or 104kWh/m²/yr. This is still very high by today's standard but perhaps less misleading than the figures given on the EPC.

On that basis I will use the calculated figure rather than the EPC figure, and extrapolate to include the extension (as no drawings or specification are currently available) and arrive at a total space heating energy demand of 12,250kWh/yr.

Minimising Energy Consumption

This is a cottage that has no insulation or airtightness, so both need to be investigated. My suggestions are:

- **LOFT** — There is no available loft space as the first floor bedroom has a vaulted ceiling. There are 100mm-thick rafters supported by large, attractive timber purlins and A frames. The recommendation is to install 50mm PUR insulation between the rafters and a further 70mm below the rafters. This will leave the purlins and A Frame exposed and provide 120mm PUR, giving a U value from 0.15W/m². The flat roof section over the proposed extension will have the same level of insulation.

- **WALLS** — The solid stone walls are currently uninsulated, with a U value of 1.9W/m². The internal plaster is in good condition, as is the external render. The clients are reluctant to remove either, for obvious cost reasons. Installing either external or internal insulation would, at best, reduce the U value to 0.53W/m², producing an overall energy saving of around 3,900kWh/yr at a value of £214 per year (assuming natural gas could be installed). To achieve that will mean hacking off either the internal plaster or the external render, installing the insulation and replastering or re-rendering. The cost is difficult to estimate but it may be difficult for the energy saving to justify that level of capital expenditure.

- **FLOOR** — The floor is currently uninsulated with a U value of around 1.8W/m². There are no plans to take the floor up, therefore the only option, as with our first property, is an insulating underlay, such as Sempafloor, or an insulating primer like Therma-Coat. Either or both can be installed and will reduce the U value to around 0.9W/m².

The floor to the proposed extension can be fully insulated with 100mm rigid foam, and achieve a U value of 0.16W/m².

- **WINDOWS AND DOORS** — The existing softwood window frames are all in good repair, although a couple of the casements need attention. Installing replacement double-glazed PVCu windows would be the usual option but in this case retaining the frames, repairing the casements and fitting double-glazed units will give a U value of 1.6W/m² and reduce the cost by at least half. The existing doors are in good repair and can remain (assumed U value 2.1W/m²).

- **AIRTIGHTNESS** — Usually a key issue but, given the size, age and type of property, in this case it does not have the same significance. The intention is to install a woodburning stove to the existing fireplace. This is all that can reasonably be done.

ADVICE ENERGY STRATEGIES



Heat Load and Energy Demands

Using the proposed insulation and including the planned extension, the probable energy loads are:

- Existing space heating will be reduced from 12,250kWh, down to 9,800kWh per year
- Hot water: 3,000kWh per year
- Lighting and power: 4,000kWh per year

Using heating oil and Grid electricity, the annual running costs will be:

- Heating: £674 (at 40p per litre and assuming 80% boiler efficiency. Again, a more typical price would be in excess of 60p. The later figure would bring costs to £720 per year)
- Power: £620 (at a tariff comparison rate of 15.5p/kWh)

Renewable Energy Options

In this case there are very few realistic options available to provide a satisfactory solution:

- **AIR-SOURCE HEAT PUMP** — The size of the house and the levels of insulation possible mean that an air-source heat pump would work at marginal efficiency. The peak heat load will be almost 10kW (to include domestic hot water). With a COP of 3.0 (the best that can be hoped for) running costs will be £661 per year. Capital cost would be around £8,000 installed with RHI payments of £633 per year.
- **GROUND-SOURCE HEAT PUMP** — The peak load of 10kW means that an area of at least 500m² would be needed. That is not available so boreholes would be the only option — like our first property, the cost is prohibitively expensive.
- **BIOMASS** — There is nowhere convenient for a biomass boiler and the only realistic option is a wood pellet stove boiler, located in the inglenook fireplace. Options include the Bronpi Leticia Hydro 14.3kW, Klover Bifire stove or similar.

A heating load of 12,800kWh per year indicates a fuel requirement of 2.6 tonnes per year. Prices for wood pellets vary but this is likely to cost around £650 per year and RHI will provide a payment of £920 per year. Capital cost would be £4,000 to £7,000 installed plus VAT.

● SOLAR THERMAL

A solar thermal array will allow the heat pump or biomass boiler to shut down over spring and summer months and provide a useful top-up on bright autumn/winter days.

Potential locations have been discussed and capital cost would be around £3,500 installed and RHI returns will be some £400 per year.

Conclusion

The planned refurbishment is a fairly major project for a young couple and has a very limited budget. In addition, the planning at this stage is to sell-on the property in 18 to 24 months. Installing low-energy (LED) lighting makes obvious sense, as does ensuring all new electrical equipment is at least A rated. So too does insulating the roof. Beyond that there is not much that can be done to reduce electricity consumption. **H**

COST/BENEFIT COMPARISON

The running and capital cost comparison for the three viable options based on 2015 prices

	CAPITAL COST	ANNUAL RUNNING COST	INCENTIVE PAYMENT	FIVE YEAR COST*	10 YEAR COST* (¹)	20 YEAR COST*
HEATING OIL	£5,500	£674	£0	£3,370	£8,540	£17,080
WOOD PELLET AND SOLAR THERMAL	£9,500 (²)	£650	£1,320	-£3,350	-£2,740	£3,760
G.S HEAT PUMP AND SOLAR THERMAL	£11,500 (³)	£661	£1,033	-£1,860	-£621	£5,989

* Figures reflect annual running cost and incentive payment (which runs for seven years under the RHI), but does not reflect capital cost

(1) Adding capital cost for a replacement oil boiler

(2) Assumes a mid-range stove boiler

(3) Assumes COP of 3.0 and 15.5p/kWh for electricity, including standing charge and VAT

N.B. The RHI figures used are those that apply from 1 July to 30 September 2015, and are as follows:

biomass 7.14p/kWh; air-source heat pump 7.42p/kWh; ground-source heat pump 19.10p/kWh; solar thermal 19.51p/kWh

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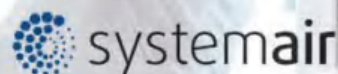
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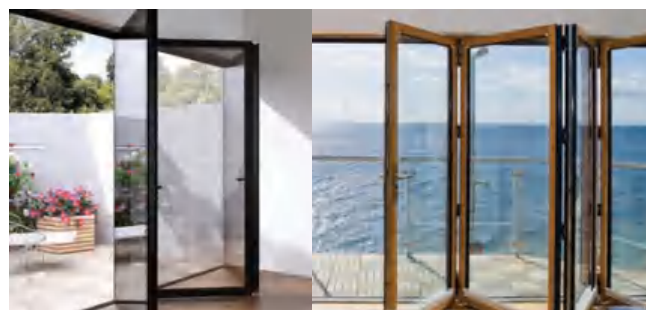
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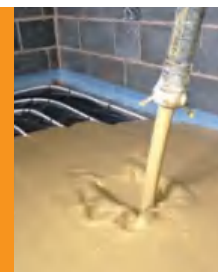
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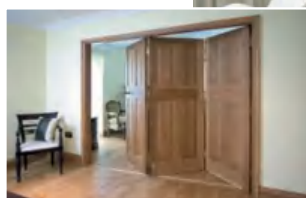
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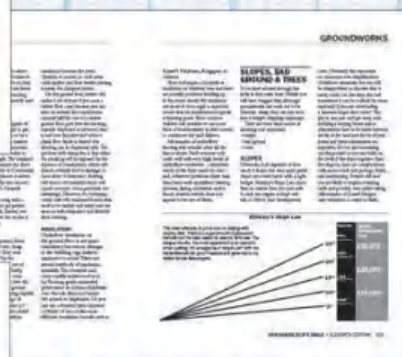
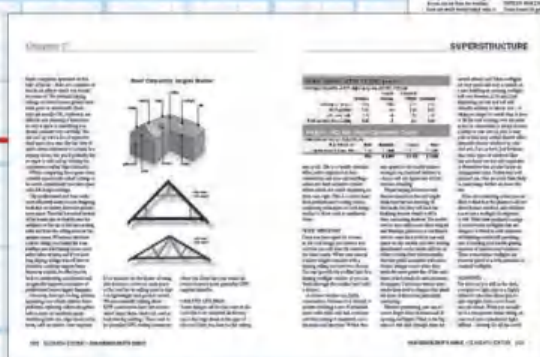
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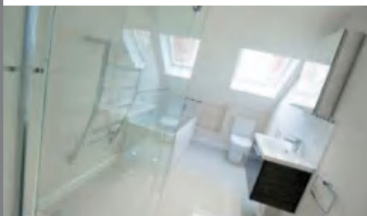


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2 The ever expanding Conservation Secure™ collection of period-style timber windows and doors by Mumford & Wood now includes an option in which the pre-tensioned spring balance is hidden from view to maintain authentic styling. In addition, this product is fully security tested to PAS24:2012 to achieve Secured by Design accreditation, while the unique design allows quick, easy and efficient maintenance. www.mumfordwood.com

3 A listed 19th Century former Schoolhouse was renovated and extended to create a new energy efficient residential family home. So that the exterior facade of the existing property was not altered in any way, internal insulation was installed to the interior of the stone walls of the original house. It became apparent that a "breathable insulation system" would be required. Remmers IQ Therm was chosen as it has the highest level of insulation for given thickness of breathable systems. www.remmers.co.uk

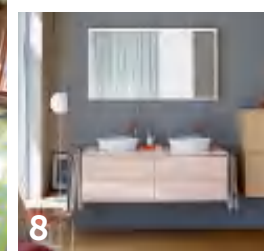
4 First launched 23 years ago, demista™ heated mirror pads have been sold to hotels, specifiers, architects, house builders, and supplied through electrical wholesalers and bathroom retailers. The self-adhesive pads are slimline and easy to install, simply fix in position and wire in to the electrical system either through the lighting or a separate switch. www.demista.co.uk

5 Titon has launched two new decentralised mechanical extract ventilation (dMEV) units for use in small to medium sized dwellings: Solace and Solitude, the latter of which is the most efficient dMEV currently available. Suitable for either new build or refurbishment projects, both the Solitude and Solace are ideal for bathrooms, kitchens and utility rooms, due to their adjustable continuous settings. www.titondirect.co.uk

6 Osmo UK, the eco-friendly wood and finishes expert has launched Gap Sealer. Osmo Gap Sealer is the ideal product for filling, fixing and repairing all types of splits and gaps in both finished and unfinished wood. It can also be used to seal and fill joints in skirting, wood flooring and door thresholds. www.osmouk.com

7 Little Coombe Farm campsite used Timoléon's underfloor heating to keep their glamping guests more comfortable. Owl Yurt and Pheasant Yurt each comprise an eight metre diameter main structure leading onto a four metre diameter satellite, Timoléon's LowBoard system – part of the manufacturer's well proven range – has been installed to deliver controllable warmth within accommodation where radiators would look as out of place as a staircase. www.timoleon.co.uk

8 Duravit's new L-Cube furniture collection, designed by Christian Werner, is defined by geometric lines with rectangular and square furniture fronts. With over 30 different surfaces, from high gloss finishes such as Jade or Apricot Pearl (shown) as well as real wood fronts such as brushed dark oak, L-Cube offers a vast number of different design combinations. www.duravit.co.uk



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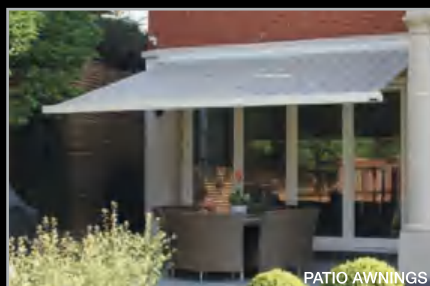
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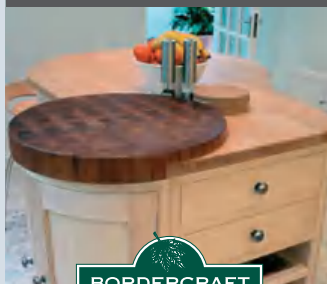


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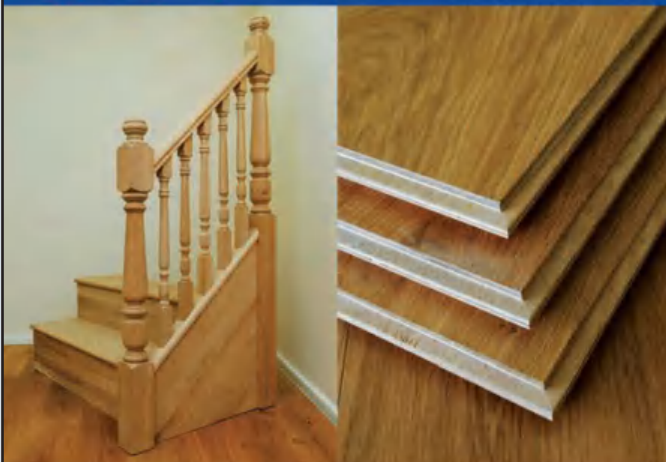
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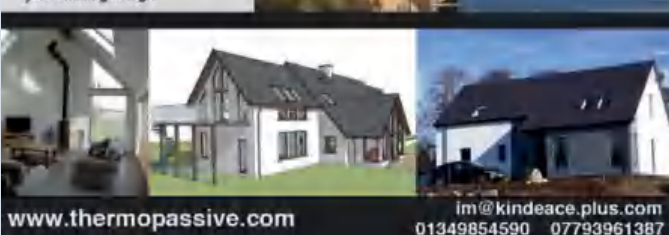
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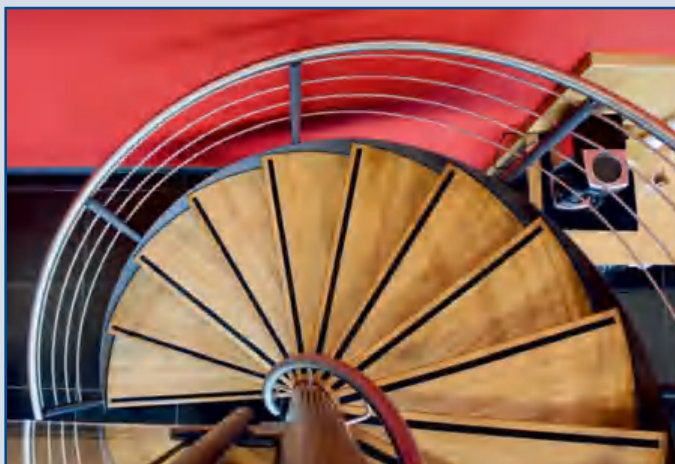
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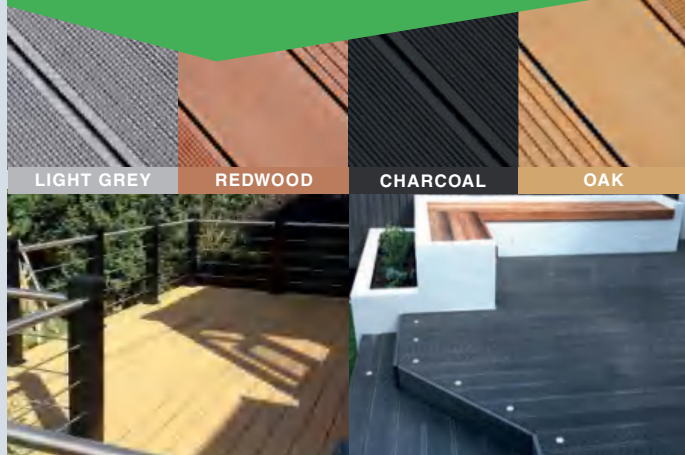
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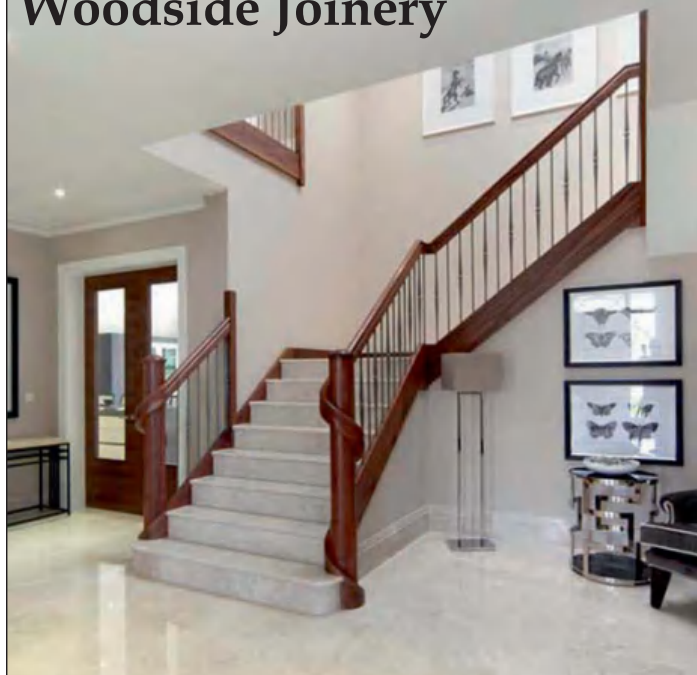
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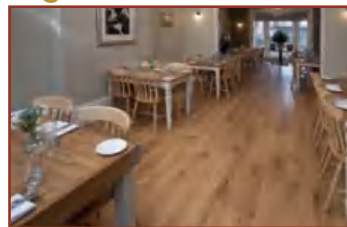
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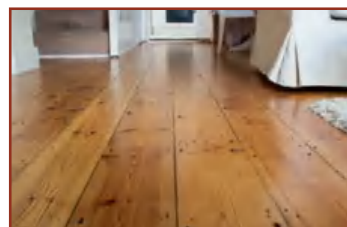
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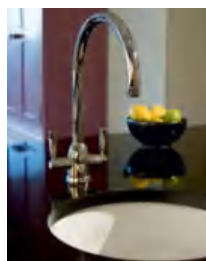


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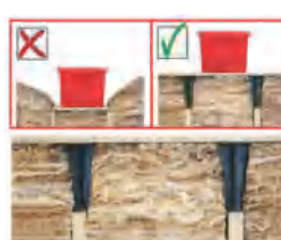
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J. Rotherham..... 01430 861047
Bisque..... bisque.co.uk
Clement Browne..... 01702 667291
Hansgrohe..... hansgrohe.co.uk
Samuel Heath..... 0121 766 4200

OVENS (P.94)

Caple..... caple.co.uk
Gorenje..... gorenje.co.uk
Miele..... 0330 160 6610
Neff..... neff.co.uk
Smeg..... smeguk.com
Whirlpool..... whirlpool.co.uk
Siemens..... siemens-home.co.uk
Beko..... beko.co.uk
Zanussi..... zanussi.co.uk
AEG..... 0344 561 1611
Gaggenau..... gaggenau.com/gb
Indesit..... indesit.co.uk
Hotpoint..... hotpoint.co.uk
Belling..... bellings.co.uk
Fisher & Paykel..... fisherpaykel.com/uk
Bosch..... bosch-home.co.uk

PACKAGE SUPPLIERS (P.128)

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Hanse Haus..... hanse-haus.co.uk
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Design & Materials..... 01909 531454
Huf Haus..... huf-haus.com/en
Border Oak..... borderoak.com
WeberHaus..... 01727 867900
Flight Timber..... flighttimber.co.uk
Welsh Oak Frame..... welshoakframe.com
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Scotframe..... scotframe.co.uk
Oakworth Homes..... oakworthhomes.co.uk
Meisterstück-HAUS..... meisterstueck.de
Fairgrove Homes..... fairgrove.co.uk
MBC Timber Frame..... mbctimberframe.co.uk
Fleming Homes..... fleminghomes.co.uk
Feeling Homes..... feelinghomes.com



Fjordhus..... fjordhus.com
SchwörerHaus..... schworerhaus.de
Dan-Wood..... dan-wood.co.uk
Rob Roy Homes..... robroyhomes.co.uk
McGoldrick Developments Ltd..... mcgoldrickdevelopmentsltd.co.uk
Taylor Lane..... taylor-lane.co.uk
English Brothers..... englishbrothers.co.uk

ROOF TILES (P.139)

Marley Eternit..... 01283 722588
Heritage Clay Tiles..... 01708 853953
Wienerberger..... wienerberger.co.uk
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Sahtas..... 01908 311411
Monier Redland..... monier.co.uk
Forticrete..... forticrete.co.uk
Keymer Tiles Ltd..... 01444 232931
Dreadnought..... dreadnought-tiles.co.uk
Tudor Roof Tiles..... 01797 320202

ENERGY STRATEGIES (P.166)

Therma-Coat insulating primer from Ambient..... ambient-elec.co.uk
Celotex..... celotex.co.uk
Sempafloor..... sempatap.eu
Strada by Jaga..... jaga.co.uk
Bronpi..... bronpi.com
Klover..... klover.it
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Sunken Courtyards

Architect Brendan Tracey shares one of his practice's favourite design tricks

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quently the spaces do not feel like basement rooms, and enjoy views upwards to the garden and sky above.

Most importantly, a sunken courtyard can act as a room in its own right; on this project we fitted decking to create a calm outdoor space, which is accessed through full-height glazed doors. The concrete supporting walls of the courtyard have a beautiful raw texture too, and are juxtaposed with the crisper brickwork and glazing of the house itself.

The end result is a surprise element that is a practical response to the need for light and space. Here, it is applied in a new build context but, garden space permitting, could just as easily be used alongside an existing building. **H**



Architect Brendan Tracey is a partner at Phillips Tracey Architects (phillipstracey.com)



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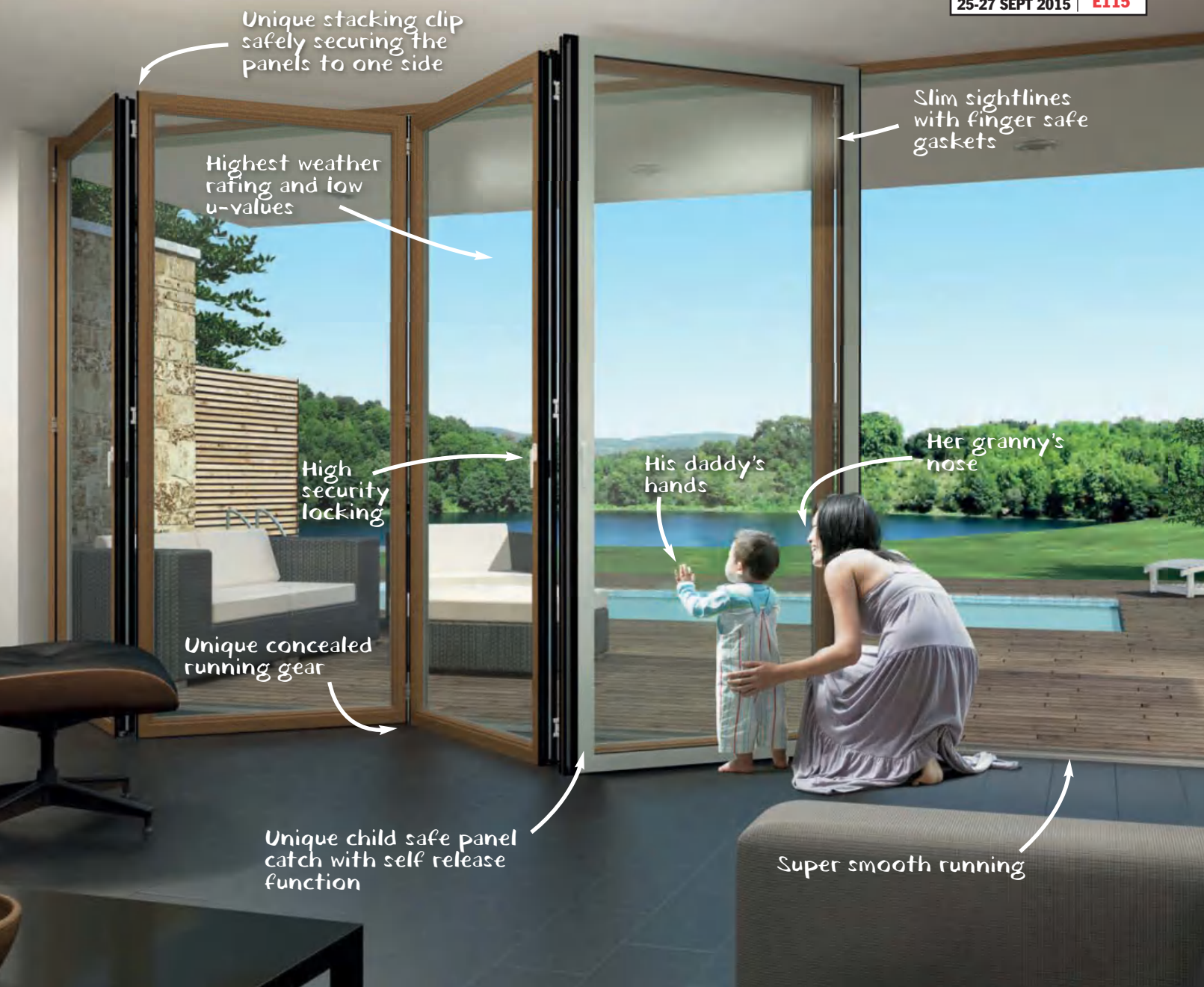
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